L. M. CROOT

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The Auckland City Council
ZOOLOGICAL
Park

6th Edition

7.50

AUCKLAND CITY COUNCIL

New Zealand

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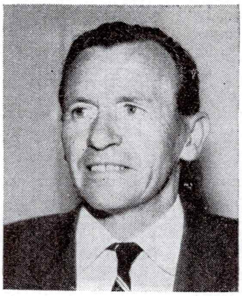

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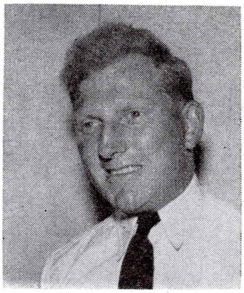

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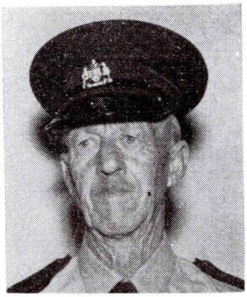
Men who look after the animals



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Relieving Keeper.

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Birds.

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Large Cats, Monkeys, etc.

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Aquarium, etc.

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Animal Trainer.

J. MILLETT
Animal Trainer.

W. ANNETTE
Deer, Hippo, etc.

Official Guide to the
AUCKLAND MUNICIPAL
ZOOLOGICAL PARK

SIXTH EDITION

The Auckland Zoological Park was opened on the 17th
December, 1922, by His Excellency the Governor-General,
Viscount Jellicoe of Scapa, G.C.B., O.M., G.C.V.O.

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GENERAL INFORMATION:

The Zoological Park is open every day of the year from 10 a.m. to 5 p.m. (A warning bell will sound at 4.45 p.m. each day.) From Christmas to Easter the Zoo will be open from 9.30 a.m. to 6 p.m.

Admission.—Adults, 2/-; Children over 3 and under 16, 9d.

Admission for Parties.—Organised parties of 25 to 50, 6d. per child and 1/6 per adult. Parties of over 50, 4d. per child and 1/- per adult.

Transport.—Trolley buses marked "Zoo—Westmere" leave frequently from Victoria Street West, and stop at the Zoo gates in Old Mill Road. At week-ends, school and public holidays, when a subsidiary entrance in Motions Road is in use, Pt. Chevalier buses may be boarded; passengers should alight at Chamberlain Park which is only a few minutes' walk from the Zoo. We recommend that this latter route be used at the end of the day to save the long climb to the Old Mill Road exit.

Feeding Times.—Most of the smaller animals receive two feeds a day, one being in the morning before the public arrive. Of the larger animals, the following feeding times are adhered to as closely as possible: Tigers, Leopards, Jaguars, Pumas and Lions, 2.30 to 3.0 p.m.; Bears, 3.15 p.m.; Hippopotami, 3.30 p.m.; Sea Lions, 4.0 p.m. These times may have to be varied slightly in very hot weather or when the animals have young, etc.

Band Performances.—A band performs during the summer at about fortnightly intervals, announcements being made in the press prior to such occasions.

Kiosk.—The kiosk in the grounds provides morning and afternoon teas and light lunches.

Elephant Rides.—Rides on the elephant are offered from 1.30 p.m. to 3 p.m. at week-ends, public holidays and school holidays. Rides are 3d. each, 1d. of which goes to a special fund for the purchase of animals of outstanding interest.

Train Rides.—A miniature train has been installed in the Zoo. Train rides take place at the same time as the elephant rides and the train leaves from the station near the kiosk. The journey round the Zoo takes about ten minutes, and the charge is 2/- adults, 1/- children.

First Aid.—A first aid box is kept in the foreman's office by the elephant house.

Lost Property.—Apply to foreman's office.

Lost Children.—When lost children are found in the grounds, they are entertained in the foreman's office until claimed. We suggest that at least one guardian of children lost should remain at the office until the child turns up.

Acknowledgments.—The City Council is indebted to "The New Zealand Herald," "The Weekly News" and "The Auckland Star" for permission to reproduce a number of the photographs appearing in this guide.

Public Address System.—A public address system operates in the grounds and facilities may be used by people who have lost contact with other members of their party in the grounds or who have mislaid articles, etc.

Souvenir Stall.—The Souvenir Stall by the Elephant House sells films, cigarettes and a variety of souvenirs.

A NOTE ABOUT OUR COLLECTION

Visitors familiar with overseas zoological parks will notice a number of animals absent from our Zoo which they might well have expected to see. These omissions can be traced to several regulations governing import and exhibition of animals in New Zealand. These can be headed broadly as:—

Livestock Disease.

The prosperity of New Zealand depends to a very large extent upon its livestock industry. Naturally, therefore, the Government strictly prohibits the importation of any animals which might carry disease that could spread to our domestic stock. For that reason there is an almost total embargo on any animals from Africa, thus excluding giraffe, zebra, etc., whilst birds of the pheasant, duck, goose type are prohibited from most parts of the world. The fear of foot and mouth disease similarly limits the parts of the world from which we can choose stock.

Public Health.

Monkeys from South America are prohibited because they could carry the germs causing yellow fever, whilst the danger of rabies stops the importation of many members of the canine family. The importation of parrots from Australia is prohibited as there is a danger they would bring in psitticosis.

Pest Danger.

New Zealand has suffered a great deal in past decades through the unchecked introduction of animals into the country where they have developed, not only to the detriment of our native flora and fauna, but have also reached pest dimensions in many cases. Naturally, therefore, the authorities prohibit any undesirable animals for that reason. Poisonous snakes are not permitted to be landed, whilst other types of animals which, if they were to become loose, might develop at large, are similarly controlled.

Fauna Protection Laws.

The story of the destruction of much of New Zealand's native fauna is a tragic one. The authorities have, over recent years, brought down very rigid legislation controlling the killing or capturing of native fauna. These regulations which prohibit the keeping in captivity of our native birds, apply equally strictly to the Zoological Parks. Although recently there has been some easing of this restriction so far as the Auckland Zoological Park is concerned, there are still a number of native species which are not represented in our collection. This prohibition also affects us in another way. Many overseas zoos prefer to use their surplus stock as exchanges for rare fauna from other countries. The number of different species of native animals in New Zealand is not large, and as most of these are fully protected, we have little to offer in exchange by way of inducement to overseas zoos to make stock available to us.

International Finance.

The present problems of soft and hard currency affect the Zoological Park as much as any other commercial organisation. Although the authorities have been most lenient, ethically we do not feel that we can ask to use hard currency if this can possibly be avoided.

WHAT THE ANIMALS LIKE TO EAT.

Patrons would enjoy their visit more if equipped with suitable delicacies. Lions, sea lions, lizards and fish do not enjoy peanuts, although many shovelfuls are removed by keepers from these quarters in the course of a busy week. Visitors are invited to feed the animals in all instances except where a special notice indicates to the contrary. In these cases, please pay heed, because considerable suffering can be caused to these special animals if wrongly fed.

Deer and llama enjoy apples, potato and vegetable parings, biscuits and dry bread. Sometimes, too, they like a little potato and other roots, but they do not seem to like lettuce.

Bears are fond of apples and oranges and enjoy buns.

Kangaroos, wallaroos and wallabies are fond of apples and can be tried with any sort of vegetables or green stuff. Like most animals they sometimes are a little capricious in their tastes.

Donkeys like almost anything in the vegetable line, and are fond of a crust of bread. In the height of summer, all the above animals enjoy such things as green maize, green oats, etc., although it is unlikely that the ordinary members of the public will be able to obtain such fodder. The greatest treat for **monkeys,** who sometimes get a little tired of the ordinary things, are oranges, bananas, green peas and occasionally spring onions. They have also quite expensive tastes, and will never refuse plums, strawberries, grapes, etc.

The hippopotamus enjoys fruit and buns.

Jamuna likes apples, corn cobs and fresh grass. In the summer she always enjoys a meal of young bamboo.

Rabbits and **guinea pigs** will enjoy any of the left-overs from preparing vegetables, and are very fond of lettuce.

Sea lions and **polar bears** are very fond of small whole fish, but visitors are asked to get the permission of the keepers before feeding these animals.

Packets of animal food at a cost of 1/6 are obtainable from the Souvenir Stall.

PLEASE HELP.

The running of a Zoological Park is difficult because so many problems exist side by side. The public can help the authorities consistently by:—

1. Not being afraid to speak its mind to anybody maltreating, teasing or otherwise upsetting the animals. Alternatively, they should seek out a keeper and report the matter as soon as possible.
2. By reporting at once, any animal they may notice looks off colour or has been injured. Although all animals are inspected twice daily, accidents can happen at almost any time.
3. By not feeding animals if requested by notice not to do so.
4. By keeping on the proper side of safety fences.
5. Considerable time and energy is spent in keeping the gardens as attractive as possible. Please discourage the public, especially small children, from picking flowers, walking on flower beds, damaging bushes, etc.
6. By using the waste paper baskets for all rubbish.
7. By placing empty aerated water bottles in some obvious place where they can be collected, rather than by dumping them in flower beds. Many dozen bottles are found in such places each month.
8. We pride ourselves on keeping rats down to a minimum. If you see a rat or a mouse in the grounds anywhere, please tell the keeper where it was seen, so that baits and traps can be set.
9. We try to keep our fences to a minimum and to leave as much as possible of the ground open to the public. This policy is only permissible if the public respects barriers when they are erected. It is usually the very occasional foolhardy person who gets into trouble and so necessitates the erection of unsightly safety barriers which take away much of the pleasure of zoo going.

HOW ANIMALS ARE CLASSIFIED

When we go shopping we know that we can get vegetables from the greengrocer, material from the draper, biscuits from the grocer, etc., etc. Suppose all the shops in the street each sold a complete mixture of goods, and all these goods were piled haphazardly on the counters, then if we wanted to buy, say, a pair of shoes, it would take us a very long time to find where we could get these shoes, because the shops had not classified their wares.

In the same way, when a zoologist is looking at an animal he likes to start off with some idea as to the type of animal with which he is dealing. Now the word "animal" covers everything that is alive (which is not a plant) so that fleas and flies are as much animals as worms, weasels and walruses. If we were to set to and count up all the different animals in the world we would find that there were about a million. How then do we set about sorting out this great mass of animal life?

Has It Got a Backbone?

The first thing we do is to ascertain whether the animal is built round a skeleton. Any animal above a certain size needs some sort of framework to prevent it from collapsing like a deflating balloon. There are two main sorts of support—some sort of inside framework like the ribs of an umbrella, or some sort of stiff outside covering like the crust round a custard pie. The most notable form of inside framework is, of course, the backbone, even though in such animals as the eel there are very few other bones except in the head.

So straight away we can go through our animals and put them into one of two groups—those that have a backbone, and those that do not. The first group is called the Vertebrates, and the second (which is by far the largest group) is called the Invertebrates. The only examples of Invertebrates we have on exhibition are the snails in the Aquarium. The great majority of the more exotic animals belong to the Vertebrates.

SUB-KINGDOM VERTEBRATES

We talk about the animal kingdom, and the two divisions mentioned above are the two sub-kingdoms.

We have such a very large variety of animals, from fish to elephants, and so we have to sort them out further.

FISH

Fish are cold-blooded animals that breathe through their gills. They spend their whole life cycle in water and their bodies are covered with scales. Fish include some of the most primitive forms of vertebrates, such as lampreys (fish that have not yet developed a lower jaw). Fish were present in the world long before Amphibians, Birds or Mammals appeared, and there are many interesting specimens to be found in the world and as fossil remains. However, they can be divided very roughly into those fish that have a cartilage skeleton (sharks, dogfish, etc.), and those that have a bony skeleton (trout, schnapper, herrings, etc.). In the Aquarium can be seen a variety of the bony fish.

AMPHIBIAN

These are cold-blooded animals. They spend a portion of their life cycle in water and a portion on land and they reproduce by laying eggs. When on land they breathe air through some form of lung system and whilst in the water they breathe through gills. A very good example is the frog. In the tadpole stage it lives in water, but when is is grown into a frog it breathes air and lives on land. Examples in the Zoo are fire-bellied newts and Axolotl, as well as the clawed toad, all of which are in the Aquarium.

REPTILES

These are also cold-blooded animals but they spend all their time on land or at the surface of the water breathing through lungs. Reptiles include many of the famous prehistoric monsters that were such a feature during the development of animals on land. Although almost all these prehistoric reptiles are long since extinct, the Tuatara which was contemporary with them is alive today and examples can be seen at the Zoo. The Tuatara forms a separate order of its own.

The reptile group contains four other living orders of animals. These are:—

Snakes.—Legislation in New Zealand prohibits the importation of snakes and so there are none on exhibition.

Crocodilians.—Examples in the Zoo are the Crocodile and Alligator. Further examples not on exhibition are Caimen and Gaviae.

Lizards.—Examples on exhibition in the Zoo are the Australian Water Dragon, Blue-tongued Skink, Cunningham Skink and a variety of New Zealand native lizards.

Turtle/Tortoise.—Examples are the Painted Terrapin and the Snake-necked Terrapin in the Aquarium.

BIRDS

Birds are warm-blooded creatures, breathing air and covered with feathers, but still retaining scales on the legs. Historically speaking they are of moderately recent origin from the reptiles. The further classification of birds is dealt with on pages 42-59.

MAMMALS

Mammals are warm-blooded creatures, usually covered in hair. The young are born alive and suckled. The mammals have adapted themselves so well to land conditions that they are the predominant group in many parts of the world. Because of the large number of mammals further classification becomes quite complicated. It is not intended to do more than touch on it here. The class is divided into sub-classes, including:

(1) **Prototheria:** This is a small group of animals now confined to two varieties, the duck-billed Platypus and the Spiny Ant-eater. They represent a sort of connecting link between the mammals and the other groups, for although they are warm-blooded and suckle their young they also lay eggs from which the young hatch.

(2) **Theria:** This includes two major groups called the **Metatheria** and **Eutheria.** In these two groups are to be found all the rest of living mammals.

Metatheria: These are the Marsupials. The young are born in a very immature state. It is almost as if we were to break open an egg a few days before it is due to hatch. The young after birth crawl into a pouch on the mother's abdomen and attach themselves to a primitive form of teat. They remain so attached a considerable period during which they complete their development. Marsupials are confined to Australia and a limited portion of America. Examples in the Zoo are the Wallabies, Kangaroo, Wombat, Opossum, Squirrel Gliders, etc. Australia is very rich in Marsupials and we find animals similar to cats, dogs, bears, etc., all represented here.

Eutheria: Again we find a division, this time into four. as under.

Cohort 1—Unguiculata (Claw-bearing animals): Under this heading we find a number of groups, such as Flying Lemurs, Ant-eaters, the Pangolids, the Bats and the Insectivora, none of which are represented in our collection, although the hedgehog, so common round the grounds, falls under the last-named group.

Under this heading too fall the Primates.

Primates: This includes the monkeys, apes, and man. Monkeys are most conveniently divided into the **Platyrrhina** (flat-nosed) monkeys from South America (examples in the Zoo are Capuchin and Spider Monkey) and the **Catarrhina** (Old World) monkeys. Characteristic of the Old World monkeys are the nostrils set rather wider apart, and examples in the Zoo are the Baboons, Rhesus, Pigtail and Langur. Also under this heading are found the Apes (Pongidae). These represent the highest developed mammal in which signs of true intelligence are to be found. The development of the brain has now reached the stage where it is necessary for the skull to be quite domed to contain it. There are only four kinds of apes. We have the Gibbon (Hylobates), the Orang Utan (Pongo), and the Chimpanzee (Pan). The Gorilla is not represented in our collection.

Cohort 2—Glires: This includes the Rodents and the Lagomirpha (hares, rabbits and pikes). Amongst the Rodents in the Zoo are the Porcupine, Guinea Pig, Agouti and the Capybara. The latter is particularly interesting as being the largest rodent in the world. Fortunately it has a placid nature.

Cohort 3—Mutice: This comprises Whales, Dolphins, Porpoises, etc. Naturally we have no examples in the Zoo.

Cohort 4—Ferungulata (The ferile hoofed animals): You will find many old friends under this heading, including some of our most familiar animals. Interesting groups are: **Carnivora** (flesh-eating). In this group we find Cats, Dogs, Bears, etc., and the word "cat" includes, of course, such animals as the lion and tiger. It may be surprising to find that in this group we have the Sea Lion, which barks like a dog and when annoyed will snarl like a dog. This group is again divided into two sections—the **Fissipedia** (cats, dogs, bears, hyenas, civets, stoats, weasels, otters) and the **Pinnipedia** (seals, walruses, sea lions). Examples in the Zoo are the Californian sea lions.

Proboscidea (Elephants): We have two Indian elephants in the Zoo.

Perissodactyla (odd number of bony hoofs): Under this heading are such animals as the donkey and zebra, whilst it is interesting to note that the Rhinoceros and Tapir (not represented in our collection) also come in this group.

Artiodactyla (even number of bony hoofs): This group is most interesting because of the great variety of animals occurring in it, which one would not at first realise are so closely related. It includes pigs, camels, llama and the ruminants, in which we find all the deer, giraffe, antelopes and cattle generally. Examples in the Zoo are the wild pig, llama, red, fallow Japanese and Sambur deer and Wapiti, as well as the Thar and Bison.

Animals are changed round from cage to cage as occasion demands. However, the general position is indicated in the map shown in the middle of the book.

THE MAMMALS

THE APES.

The Orang Utans (Pongo): The name of the animal is not related to its colour but is Malayan for "wild man of the woods." They are very typical apes, the very high domed forehead giving ample room for the highly developed brain. The arms are long, giving an indication of their tree-loving habits. The legs are relatively short and are not used a great deal. If they have to travel along the ground they prefer to move rather like a rabbit, reaching forward with their arms and giving a short jump forward. When young they are mild tempered and most affectionate. Later they become less reliable and as they grow large a very big outgrowth on either side of the head develops. This is quite natural, but it is difficult to see what purpose it serves. The Orang Utan is a native of Borneo and Sumatra and is purely a vegetarian. In captivity they have a great fondness for tea and in cold weather relish a mug of warm soup.

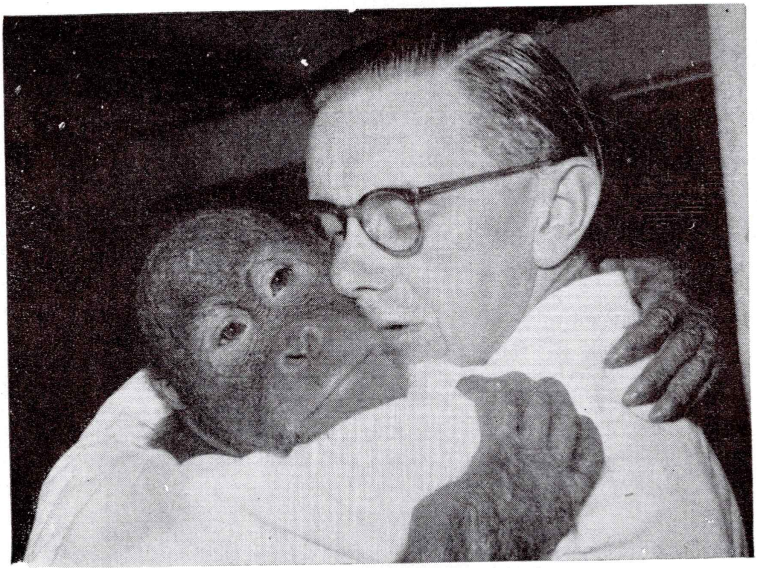
The Chimpanzee (Pan): The Chimpanzee is a native of the dense African jungle. It lives mostly in trees and builds a nest as a temporary residence, but moves on from time to time. They are mainly herbivorous but will eat insects and sometimes birds. Our four Chimpanzees were trained specially for us by the London Zoo.

The Gibbons (Hylobates) are the only local representatives of the man-like apes, and are the small cousins of the gorilla, the chimpanzee and orang utan. Long-armed and tailless, with a small, round head and soft, woolly fur, they are the only apes which walk upright on the ground, balancing themselves with their arms. Their larger relatives, when walking or running, all support the weight of the body on the knuckles of their closed hands. The gibbons are, however, essentially tree-dwellers, and the most remarkable acrobats in the Zoo, being highly specialised for tree-climbing. Otherwise their skeleton very closely resembles that of man, and the skull can only be distinguished by an expert from that of a human baby.

They are gentle, affectionate and obedient by nature, with no bias towards "monkey tricks," and make charming pets, being thoughtful, well-behaved and sedate. Their native home is in the tropical forests of Asia, particularly in those of the Indian Archipelago. Although a number of species of gibbon are recognised, great variation within the species is noted, and specific names to the exhibits are not given.

MONKEYS.

The typical monkeys fall into New and Old World groups which are readily distinguishable by the fact that the American monkeys alone have prehensile tails used for grasping branches or collecting food. The African and Asiatic monkeys have long, shorter or very short tails, but these appendages are purely ornamental.



Turvey the Orang Utan makes friends.

The Capuchin Monkey **(Cebus capucirus)** is another New World type and a near relative of the spiders. The name is derived from the growth of hair on the head, which resembles a monk's tonsure. This is the Italian organ-grinder's monkey, whose function it was to doff its little red hat and collect pennies therein from the audience. Its exceptional intelligence is far better employed at the Auckland Zoo in the care of baby monkeys. Taking full charge at weaning, our Plunket nurse can claim that she has never lost a case and that her proteges are the best groomed and best behaved children in the Zoo. The capuchins also come from the forests of tropical America.

The Spider Monkeys **(Ateles Geoffroyi)**, so called from their very long arms and legs, are a typical New World type, with a wonderfully useful tail. The tip is naked beneath to give a firmer grip. This "fifth hand" is never at rest, perpetually exploring objects lying above the monkey's back, like the tentacles of an anemone, searching for fruit, birds' eggs and other articles of food. The spider monkey has no thumbs, which may be a distinct advantage in rapid climbing when thumbs are apt to be an impediment. Various species occur throughout the forests of tropical America, extending into Mexico, where they frequently fall a prey to the huge harpy eagle.

The Old World monkeys often have large cheek-pouches in which food can be temporarily stored while more is collected. They also often have callosities, or bare patches, on their hinder parts. Neither of these features is ever found in the New World types. In the Old World species the nose is narrow, and the close-set nostrils open downwards, as in man, whereas in the American monkeys the nose is broad and flat, with the nostrils opening outwards and separated by a broad division.

The Vervet or **Black-faced Monkey** **(Lasiopyga pygerythra)** from Africa is an active and pugnacious little creature with a fiery temper. Face, hands and feet are black, in striking contrast to the greyish-green fur of the body.

MACAQUES.

This is a group of monkeys widely distributed throughout the Old World, and represented in our collection by the following types:—

The Pigtail Monkey **(L. Macaca nemestriaa)** is a typical Old World type from south-east Asia and is common in the Malay Peninsula and islands. As the name denotes, it is endowed with a very short, perfectly useless but highly ornamental tail. It has a high standard of intelligence and is trained to collect coconuts for its owner. Hired out by the day or job, it will also bring the latter a steady income and enable him to live a life of leisured ease. It has been reported that one pigtail monkey was entered on the establishment of the Indian Forest Service and employed to collect seeds and botanical specimens from the tops of the high forest trees, receiving a monthly salary of one dollar, which was spent in the bazaar on the animal's favourite lollies. The old males develop into massive, powerful and dangerous beasts.

The Kra Monkey or Crab-eating Macque is a not-distant relative of the pigtail and has much the same distribution.

The Bengal or Rhesus Monkey **(Methesus),** a golden-grey species from Northern India. is one of the commonest types in captivity and is the bandar of Kipling's stories.

The Bonnet Monkey **(M. Sinica)** is a native of Southern India. The name is derived from the hair and markings on the head, which distinguish it from the rhesus monkey.

LANGURS.

This is a group of monkeys which occurs in South Eastern Asia, and is represented in this collection by the entellus monkey from India.

LEMUROIDS.

The lemur is confined to Madagascar, but a very close relation, the lorris, is found in the Malay Peninsula. The slow lorris will be found in the Zoo. This is a small creature very slow and deliberate in its habits, fond of climbing and moving only at night. During the day it curls up in its box.

BABOONS.

The baboons are the least highly developed of the monkeys, with a more or less dog-like appearance. The muzzle is long, the limbs of equal length and the animals walk on all fours, with the palms of the hands and the soles of the feet flat on the ground. They rarely climb trees, but frequent rocky hill country in troops, sheltering in caves and fissures. They are very destructive and often dangerous, the huge canine teeth in the older males making them more than a match for the biggest of watch-dogs. They can also throw stones with an excellent aim, which is the nearest a monkey ever came to using a weapon, though a gorilla will use a heavy stick as a club. The baboons have a highly-developed social system and family life. In Natal many of the early settlers were ruined by these monkeys, who would come down from the hills at night in a regular military formation, sending out an advance guard and posting sentries to warn the main body of the approach of danger. The rest would then run up and down the rows of maize, pulling off all the cobs. Some they would tie to the hair on their chests and the rest would be thrown away. The baboons are so cunning that they will never take poison, however skilfully concealed.

The Chacma Baboon **(Papio porcarius).** This is a common baboon of South Africa where it exists in packs. The fortunes of this animal have varied, it being formerly condemned as a pest, although at one time it was popular as it ate a considerable amount of prickly pear which was a plant pest in Africa. Chacma baboons are very fond of scorpions, although naturally they do not get this food in New Zealand. The specimens on exhibition were a present from the Directors of the Taronga Zoological Park, Sydney.

Baboons make good mothers.

THE FLESH EATERS.

The carnivora can be classified into cats and dogs, an intermediate group represented by the civets and racoons; the bears, and aquatic forms, such as the sea-lion. The cats, including the lions, tigers, leopards, jaguars and pumas, have hinged, curved and retractile claws; the dogs represented by the coyote, hyaena and fox, have fixed and more or less straight claws. This feature determines their respective habits and methods of hunting. The cats climb, stalk their prey, aided by wonderful camouflage, and commonly spring on to the withers of their victims, breaking or biting through the vertebrae of the neck. The dogs, on the other hand, generally hunt in packs, running their prey down and springing at the throat to sever the jugular vein. Both dogs and cats run on the tips of their toes, which enables them to develop remarkable speed. The bears may be regarded as dogs which have lost their tails and have let their heels drop to the ground, with a resulting awkward and shambling gait. The marine carnivora, such as seals, sea-lions, walruses, porpoises and certain whales, show a progressive adaptation to life in the sea which ultimately reaches a very fish-like form.

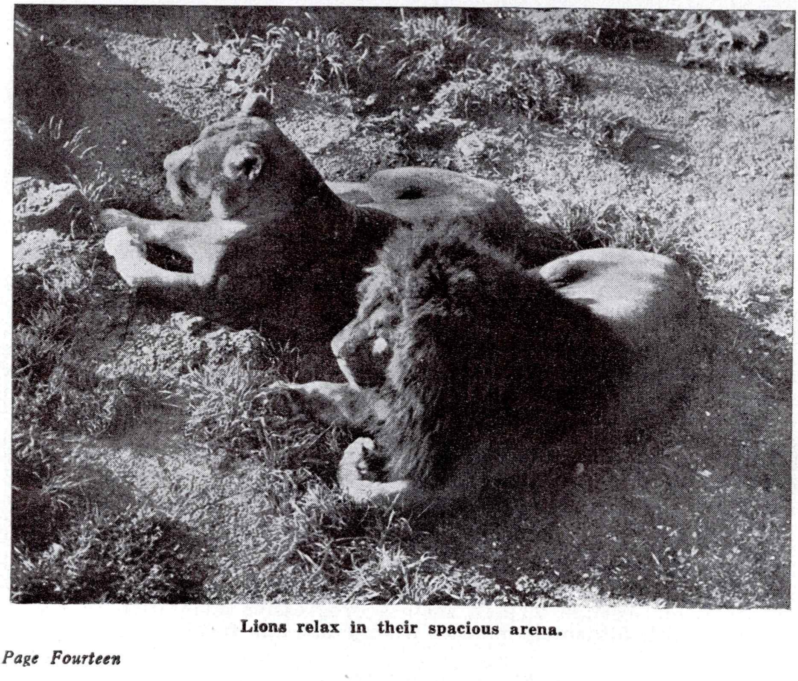
THE CATS.

The Lion **(Felis leo)** has been awarded the title of "King of Beasts" in recognition not only of his abnormal strength, but also of his nobility. There is a subtle charm of character, of power and grace, and lack of cruelty, which seems to differ from that of the other big cats. He is unquestionably the best husband and father in the Zoo, and is only really happy in the bosom of his family. A "pride" of lions on the African veldt will often consist of three generations, and when a "kill" is made the whole family circle sit round the feast and share and share alike. At the Zoo in the evening it is quite a common sight to see lion and lioness asleep in one another's arms.

Most of the large cats in the Zoo breed regularly and it is unusual for there not to be some cubs on exhibition. Whatever the colouring of the adult it is usual for the young to be spotted and the lion is no exception. The cubs, who have quite a distinct pattern on the head, are born with their eyes shut. These open at about ten days and at that time also the first teeth are cut. At about two months the cubs have a full mouth of milk teeth. One of the pairs of lions on exhibition abandon their young as they are born and a series of them have been hand-reared. In these cases they prove to be playful, affectionate, although somewhat boisterous, pets.

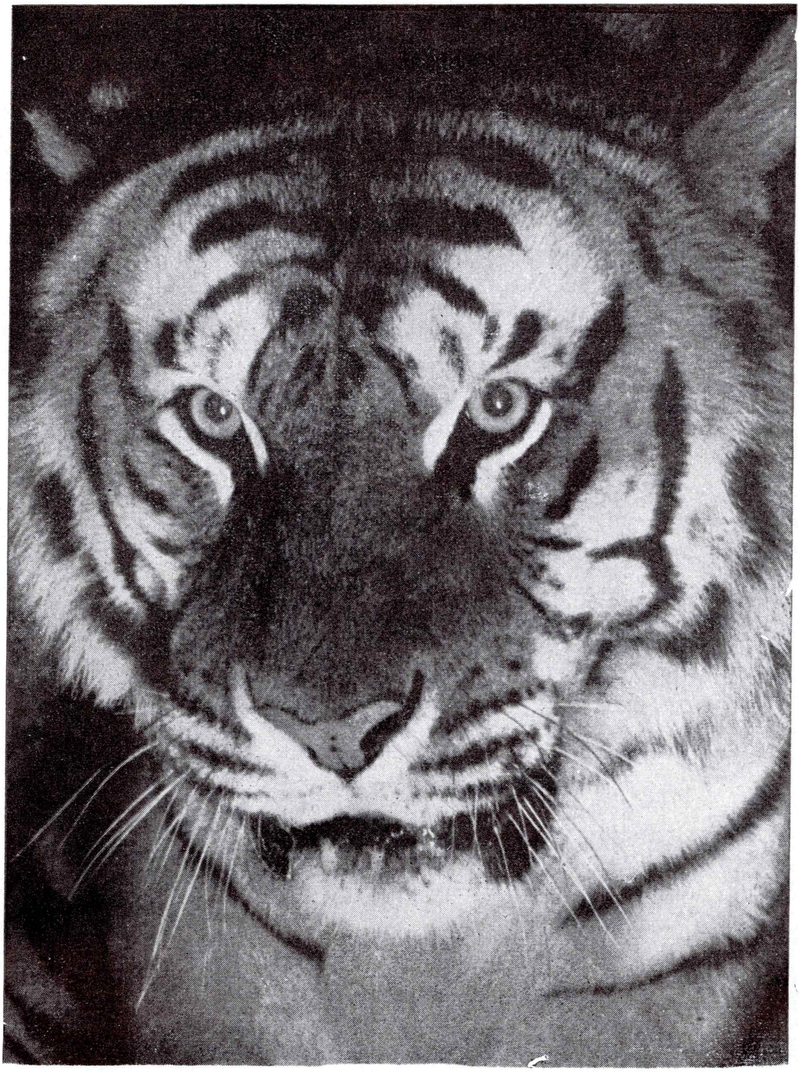
The lion will rarely attack man in daylight unless cornered or wounded, or too old and toothless to pull down quicker and tougher game. Visitors to the Kruger National Park in the Transvaal often obtain photos of lions at quite close range from their cars. George Sanger, of circus fame, proved that the lion would lie down with the lamb—for months in the same cage, even when the latter grew horns and playfully butted his big companion in the ribs!

Lions recognise their keepers and other friends by their voices and not by their clothing or scent.



Lions relax in their spacious arena.

The Tiger **(Felis tigris)** in his rage is one of the most terrifying things in nature. For all his beauty, strength and savagery, however, he has a weakness—an appetite which nothing seems to satisfy. He will devour as much as 200lb. of meat at a sitting, and if he fails in his hunting to pull down a deer or cow from a native herd, he will eat snakes, crabs, frogs, scorpions and even garbage. This insatiable appetite also drives him to cannibalism. Tigers will often kill and eat their own cubs, and cases are on record where they have even devoured their wives. The tiger also breaks the jungle law which says, "Never kill man," and may take to man-eating at any age. But for all his tremendous strength and terrifying roar—which is generally a sign that he

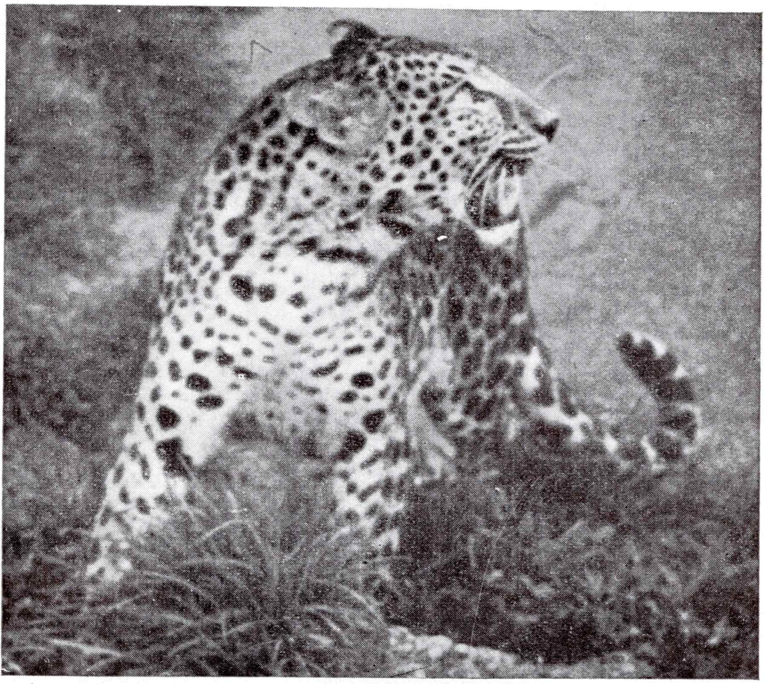


A large cat.

has missed his kill—the tiger is a bit of a cur. He prefers to avoid a fight, though he will attack if disturbed at close quarters, or lying beside his kill. He will rarely take a cow from the herd while the herdsman is standing by, but will wait to cut off a straggler. Similarly, a man-eater will never attempt to seize one of a crowd, but carries off the last man of an Indian file on a narrow native footpath. The buffalo has no fear of him and will often fight him to the death. He will also run from a pack of wild hunting dogs, and stories are told of bull-terriers who have put tigers to flight. With all his faults, however, the tiger has one excellent virtue. He is the only member of the cat tribe who takes a bath.

Baby Puma asks for more.

Leopard Cubs at Two Months.



Leopard.

The Leopard (Felis pardis) with his South American cousin, the jaguar, is the most savagely aggressive of all the big cats. His chosen method of hunting is to lie out along a leafy branch overhanging a native footpath or game trail, and drop on the shoulders of his prey. His spotted coat blends perfectly with the foliage of the tree, and renders him invisible to his victim. The leopard will thus attack man unprovoked. His favourite food is, however, dog, and no hound is safe, even under his master's bed, if a leopard be in the neighbourhood of the camp. He is not too proud, nevertheless, to descend to a meal of field-mice, and will watch a mouse-hole for hours with the patience of a domestic cat. The name of "panther" has been given to a large strain of leopard found in India.

The Puma (Felis hippolectes), which is also known in America as the cougar, panther or mountain lion, has a very wide range from British Columbia to Patagonia, and shows remarkable adaptation to climate, as does the lion. Both types will be found ranging from snow-clad mountain ranges to the steamy heat of tropical jungles. The puma is very long in the body, with a height of about two feet at the shoulder, and a beautiful unspotted pelt of tawny gold. The puma is credited with a liking for human society, and has never been known to attack man, but will often be found curled under a traveller's bed or hammock. This friendly disposition in an otherwise savage and very destructive beast is remarkable, for the puma kills both wild and domestic beasts not only for food but also from sheer lust of killing.

Black Panther. This animal is not a distinct species. Black cubs can be born to the normal spotted parent, although a black pair would normally breed true. Although the black specimens are reputed to be the fiercest of all, the male on exhibition at the Zoo has settled down very well.

The Jaguar (Felis onca) from Central and South America is the largest of the big cats in the New World, and slightly larger than the leopard, from which it differs little in habit and appearance. The markings in the jaguar's fur, however, consist of rings enclosing a central black spot, whereas the leopard's spots are formed by rings of black surrounding a centre of the ground colour.

THE DOGS.

The true dogs include the wolves, jackals, the coyote or prairie-wolf of North America, and the numerous types of domesticated dogs. They are all gregarious and commonly hunt in packs. The foxes on the other hand are solitary animals. The wild or hunting dogs of India and Africa belong to distinct genera. The dhole of India and the Cape Hunting dog are the most dangerous of all wild animals and are terribly destructive. The hyaenas constitute a very distinct family, with certain affinities to the cats, and are scavengers rather than hunters.

The Coyote or Pairie Wolf (Canis latrens) ranges from Hudson's Bay to Central America. It is smaller and less savage than its cousin, the wolf, with thicker and longer fur which changes from brown in the summer to grey in the winter. Unlike the wolf, it digs burrows in the ground, and lives on rats, rabbits and birds, with berries for a change of diet.

Timber Wolves (C. occidentalis). This is the wolf of the forests of the United States and Canada, and should not be confused with the European wolf. The animals on exhibition came from San Diego.

Red Fox (Volpes fulva). This is the common fox of Europe, although the specimens on exhibition are the offspring from this species that has been introduced to Australia. In their natural state they live in holes in the ground which have a number of exits. This is the animal which is hunted with horse and fox hounds in Great Britain, and is a relative of the silver fox which is reared commercially for its pelt.

Huskie Dogs. These animals are well known as the pack dogs used for drawing sleighs, not only in the Arctic lands, but also on many Antarctic expeditions. The dogs on exhibition at the Zoo are the offspring from the dogs used on a Norwegian expedition to the South Pole regions. Dog fanciers recognise over six different varieties of huskie dog.

Our huskies came into prominence when we were requested by the Ross Sea Committee to breed and train a team to take part in the Trans-Antarctic Expedition led by Sir Edmund Hillary. This was done and the Auckland team left on 13th March, 1956, to complete its training at Mt. Cook. We have been gratified to learn that they are doing extremely well and are considered to be the best leading team down there, and also that our lead dog, Hemp, is by far the best lead dog. Breeding is still in progress and we hope to send further dogs to join the Expedition.

Pyrenean Mountain Dogs. This is a very ancient breed used for many years to protect flocks of sheep in its native mountains. Some people claim that these dogs are distantly related to the Tibetan mastiff. Whilst this point may be in doubt it is certainly closely related to the St. Bernard dog.

The Hyaena (Crocuta crocuta) is a heavily-built animal with longer front legs, short and very broad head, and coarse, shaggy fur marked with vertical stripes or spots. It lives on carrion or garbage, feeding on what is left of the carcases killed by beasts of prey, or on animals which have died from other cause. It is remarkable for the huge size of the teeth, the amazing power of the jaws and its digestive capacity. Whereas the lion will only crush up the smaller bones of its kill, the hyaena will snap the thigh-bone of an antelope in halves and swallow the two knuckle ends with gusto. Leather saddlery is often stolen in the desert and devoured by these beasts, which are also given to grave robbing. In Abyssinia holes are left in the village walls to let the hyaenas enter by night and clear up all the house refuse, which is placed ready for them outside the doors. The striped hyaena ranges from India to North Africa; the spotted hyaena throughout Africa south of the Sahara. Both types are timid and cowardly beasts and have never been known to attack a man unless asleep.

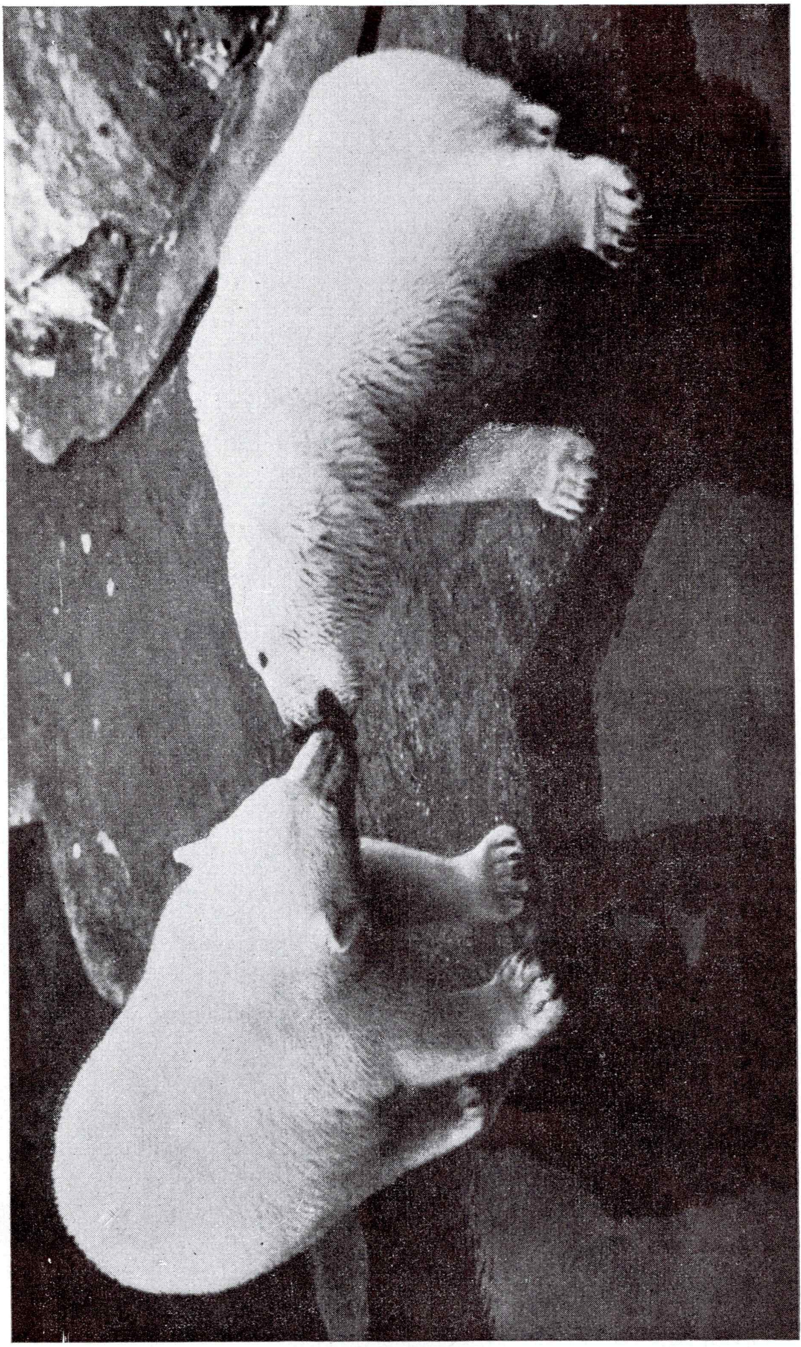
Dingoes (**Canis dingo**). The Australian wild dog or dingo is of particular interest as it is one of the few mammals in that country which is not a marsupial. It is generally considered that the dog was introduced to Australia at a fairly late period before the coming of the white man, and is stated to be related to the Pariah dog of India.

THE BEARS.

Closely related anatomically to the dogs, the bears are distinguishable by their heavy build, very short tails, flat-footed gait and dense coat of fur. They are also solitary by habit and treacherous by nature. The mating season is brief, after which the male goes about his business of foraging and hunting, and probably never sees the cubs he has fathered. It is a fallacy that bears hug their prey to death. The normal method of attack is to stand upright and strike at the victim's head with a downward blow of the paw. which is armed with long, rigid claws resembling a murderous steel rake. The bear shares with the gibbon the distinction of being the only mammal which walks upright on the ground. Kipling's poem "The Truce of the Bear" is eminently descriptive: "Make ye no truce with Adam-zad—the Bear which walks like a man." . . . "From brow to jaw that steel-shod paw, it ripped my face away." Hospitals in the N.W. Provinces of India receive an annual quota of natives blinded by this form of attack. Dancing bears with their gypsy trainers still tour the villages of Southern Europe.

The Polar Bear (**Thalarcotis maritimus**) from the arctic region is distinguished by its long coat of pure or yellowish white, with black muzzle and lips. The soles of the feet are provided with hair to afford a better grip on the ice. The winter food of these bears consists of seals, salmon, cod, and the flesh of stranded whales. In the summer they are largely vegetarian, eating seaweed, grass, lichens and berries. The male hunts and fishes throughout the winter, often drifting hundreds of miles on ice-floes. The female, however, disappears in the autumn, digging a cave in a snowdrift and sleeping therein all through the dark winter months. During this hibernation her cubs are born and nourish themselves without disturbing their mother—a veritable case of "twilight sleep." In the spring the new family emerges from hiding, the dam a mere shadow of her former self, with a remarkably healthy appetite.

The Brown Bear (**Ursis aretos**) in one or other of the numerous local types is widely distributed throughout North America, Europe and Asia. It was common in Great Britain up to the time of the Norman Conquest, and the cruel sport of bear-baiting with dogs continued in favour until mediaeval times. A bear-pit is still shown at Berne in Switzerland. This bear boasts a winter and a summer coat. The former consists of long, thick, soft fur beneath which is a short woolly undercoat. In colour the fur ranges from the very light, silvery brown of the Himalayan type, the so-called Isabelline bear, to a very dark brown. On a point of diet "all is grist that comes to the brown bear's mill." Fish, flesh, insects, roots, berries, grass and seaweed are all included in the menu. The gigantic Alaskan brown bear lives for weeks in summer on "spent" salmon which have died after spawning. The meat course ranges from field mice and squirrels to cattle and ponies. But all bears have a very sweet tooth, and honey is used in large quantities to sweeten their meals. In consequence most bears are bandy-legged from climbing trees to rob wild hives. The brown bear hibernates in all the colder parts of its range, and the cubs are born during their mother's winter sleep. They nearly always occur as twins, and remain for some four weeks naked and blind, after which they become the most charming and playful of all young animals.



Polar Bears.

Black Bear.

Young Honey Bears are always mischievous.

The Black Bear **(U. Americanus)** from the forests of North America has a shorter, smoother and more glossy coat than his brown cousin, and is distinguished by the small hind feet. He favours a similar diet with the addition of ants and ant-eggs, of which he is very fond. The male on exhibition has had an adventurous career. In early youth he went to sea as a mascot on the U.S. battleship "California." Outgrowing this role, he spent some years in the San Diego Zoological Park, and then made the voyage to Auckland as a first class passenger. The female, who was reared at the Zoo, greeted his arrival with a typical exhibition of bearish jealously and unsocial habit. Annoyed at being asked to share her den and pit with even so handsome a husband, she went on hunger strike and bit her keeper—the only case of the kind in the history of the institution—and to this day refuses to be reconciled to the matrimonial state.

The Bruang or **Honey Bear** **(Helarctos malayanus)** is the smallest of the family, with very short black fur and a horseshoe-shaped band of orange-yellow on the chest. It rarely exceeds four feet in length and 80lb. in weight, and is much more active and quicker in its movements than its larger cousins. Living largely on fruit and honey, it is naturally an excellent climber. The bruang ranges from Thibet through Burma and the Malay Peninsula to Sumatra, Java and Borneo. It is held in great reverence by the Malays.

Cross-bred Bears. An interesting pair of bears will be found in one of the large pits. These were born in the Adelaide Zoo and are brown bears who have a touch of Himalayan bear in their ancestry. This has resulted in a considerable darkening in their coat and of an irregular "collar" around their shoulders. The Himalayan bears usually have a white chevron on the chest. This is not present on the bears on exhibition.

THE RACCOON FAMILY.

This is a small group of flesh-eaters, including the raccoons, pandas, coatis and kinkajou, closely related on the one hand to the bears, and on the other to the otters, badgers and weasels. The family likeness to the bears is best seen in the pandas, and is far less evident in the raccoons. Most members of the family are flat-footed, with long tails which are usually ringed. They are generally good climbers and nocturnal in habit.

The Crab-eating Raccoon **(Procyon lotor)** from South America has a very broad head and sharply-pointed muzzle, small ears and non-retractile claws. The toes are, however, widely spread when the animal is climbing. The fur is coarse and brown and the hairs are tipped with grey. A black band, edged with white, crosses the muzzle and surrounds the eyes. The thick, bushy tail has five black rings separated by others of a light colour, and the tip is black. Like the closely-related common raccoon in North America, the type exhibited is very partial to fresh-water crabs, tortoises, crayfish, frogs and mussels, which it hunts by night, turning over stones in shallow water. This practice is responsible for its habit of washing all food in water to remove grit, and for its intensely inquisitive nature. A tame raccoon getting loose in a house by night will open every drawer and cupboard, pull the corks from bottles, and generally go through the premises with a fine toothcomb. All raccoons are excellent swimmers but cannot dive in pursuit of fish, though they will catch those cut off in pools by a falling river. They also climb well and make their lairs high up in hollow trees, but do most of their hunting and foraging on the ground or in the water.

"The Ring-tailed 'Coon."

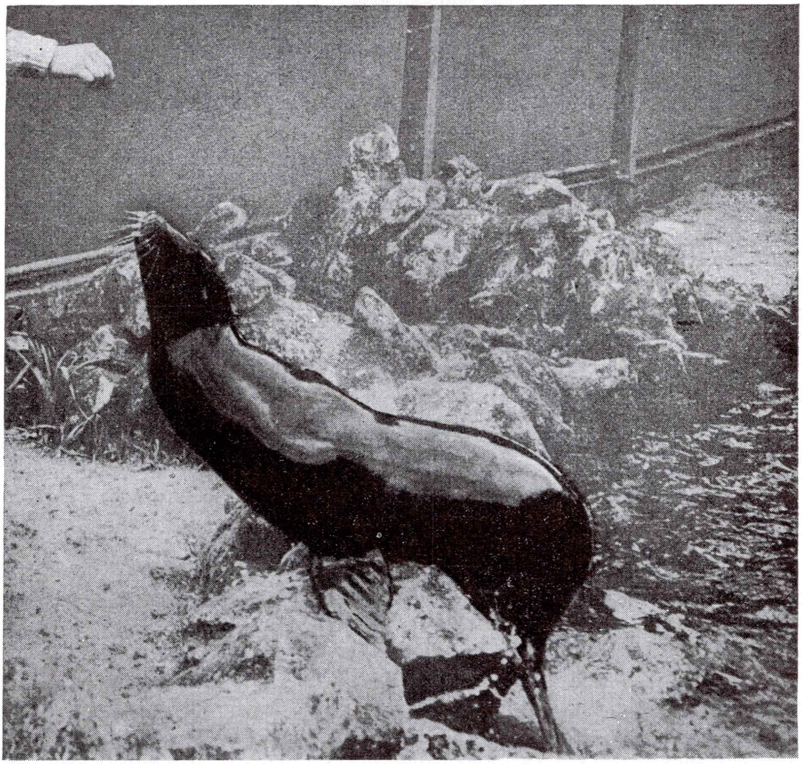
The Coati (**Naona narica**). The raccoons and the coati sprung from a common ancestor. The coati is found in South America. It is a fox-like creature with the ringed tail of the raccoon. They hunt in packs and are most quarrelsome. In captivity they become very tame, but are always touchy.

THE SEAL FAMILY.

Many fish-eaters, having given a trial to dry land, either found fresh water insipid or the food supply unsatisfactory, and so returned to the sea from which all life originally emerged. The result has been remarkable changes in the bodies of these marine animals adapting them to an aquatic existence. In the eared seals or sea-lions, the walruses and the true seals these changes have not proceeded so far as in the fish-like mammals, but their feet have been transformed into "flippers," and their tails have almost disappeared. The sea-lion still shows small external ears which have quite disappeared in the walrus and the seal. The sea-lion also has a distinct neck, and on land its hind feet turn forwards and can be used to propel the animal in a very awkward, shuffling gait. In the seal no neck is seen, and on land the hind feet extend backwards and are useless for locomotion. The sea-lion can therefore be regarded as a connecting link between the land and marine mammals.

The Californian Sea-lion (**Zalophus californicus**) is the type most commonly seen in captivity and can be trained to perform amazing feats of dexterity. It lives almost entirely on cuttlefish and squids, and only eats fish in zoological gardens as a compulsory alternative. As, however, the horny beaks of the cuttles often cause gastric ulcers in the wild state, the animal has a better chance of survival under human management. The male sea-lion utters a sharp bark very like that of a dog. The young are born singly once a year, and for some time after birth are unable to swim, drowning if by any mischance they fall into deep water. Sealskin as used by furriers is not taken from a true seal, but from another Northern Pacific sea-lion which is closely related to the Californian type. The fur of both forms is almost black in the young animal but grows much lighter with age.

Southern Fur Seal (**Arcto cephalus forsterii**). Members of this type are exhibited from time to time in zoological parks, to which they are brought for care and attention. After recovery they are subsequently released. They are invariably youngsters from six to eighteen months old and seem to be increasing in numbers in the waters around Auckland and Northland. It would appear that they migrate from the breeding grounds to the south of New Zealand. It is not always realised that there is a southern as well as the northern fur seal. These are two distinct animals. The southern fur seal is actually a sea-lion. At one time extremely numerous around the southern shores of New Zealand, its numbers have been greatly reduced by the ruthless slaughtering by seal hunters during the nineteenth century.



Californian Sea Lion.

THE GRASS EATERS.

Passing from the hunters to the hunted, it is found that while the toes of the former are armed with claws, those of the latter are enclosed in hoofs or bear hoof-like nails. The purpose of a hoof is to let the owner dig its toes in and make a quick getaway when danger threatens. The hoof may be compared to the spikes on a running shoe. Most of the typical hoofed animals, or ungulates, are built for speed over the open ground. None of them climbs, and all are vegetarians. They are divided into three groups—the even-toed, the odd-toed and the elephants. In the first there are never more than four toes; the two middle ones are of the same size, and are often the only ones developed. This group embraces cattle, sheep, goats, camels, giraffes, antelopes, deer, pigs and the hippopotamus. The most important family of even-toed animals includes those which "divide the hoof and chew the cud," permitted to the Israelites for slaughter as clean feeders. These so-called ruminants have a remarkable stomach of four separate chambers for the digestion of large quantities of vegetable roughage which, after partial reduction in the stomach, is returned to the mouth for further mastication. The pig and hippopotamus have a normal stomach. Among the odd-toed group the horses, asses and zebras have only one functioning toe on each foot, the other two being reduced to the hidden splint bones. In the rhinoceros all three toes reach the ground.

THE WILD CATTLE.

Both males and females in this family have horns consisting of bony cores covered by hollow sheaths, which are permanent throughout life. The tail is long with a tuft at the end.

The Bison or Buffalo (Bison bison). The animals on exhibition are the American variety. Formerly these animals used to roam the North American Continent in enormous herds, it being estimated that at the time of the arrival of the white man there were 75 million head in existence. So great and fanatic was the destruction of these beasts, whole herds being slaughtered quite senselessly, that by the turn of the present century the animal was in danger of becoming extinct. By rigid protection in national parks and zoological collections, the species has been saved, and now several thousand head exist in various parts of the world.

THE GOATS.

Separation of the sheep and the goats is no easy matter. The male goat, however, generally has a beard and a peculiarly strong odour. The tail also is very short, and callosities, or "corns," are formed on the knees. No glands occur on the face or in the hind hoofs. Ibex and markhor with magnificent horns are both true wild goats, while the chamois is another goat-like form with certain antelope-like features. While both sheep and goats are milked in many countries, much care has been devoted in Switzerland and Great Britain to improving the milking capacity of selected wild types of goats. As much as a gallon of milk a day and 100 gallons in the year have been recorded from pedigree milch goats.

Himalayan Thar (Hemitragus jemahicus). These animals represent the connecting link between sheep and goats, having affinities to both groups. In this respect they are not dissimilar to the barbary sheep, although the thar has four quarters to its udder. The thar are expert climbers, and can scale and descend rocky faces unclimbable by man. The species has been introduced to New Zealand, and occurs in the Mount Cook area, but it was easier for us to obtain specimens from the Taronga Zoological Park, Sydney.

THE DEER.

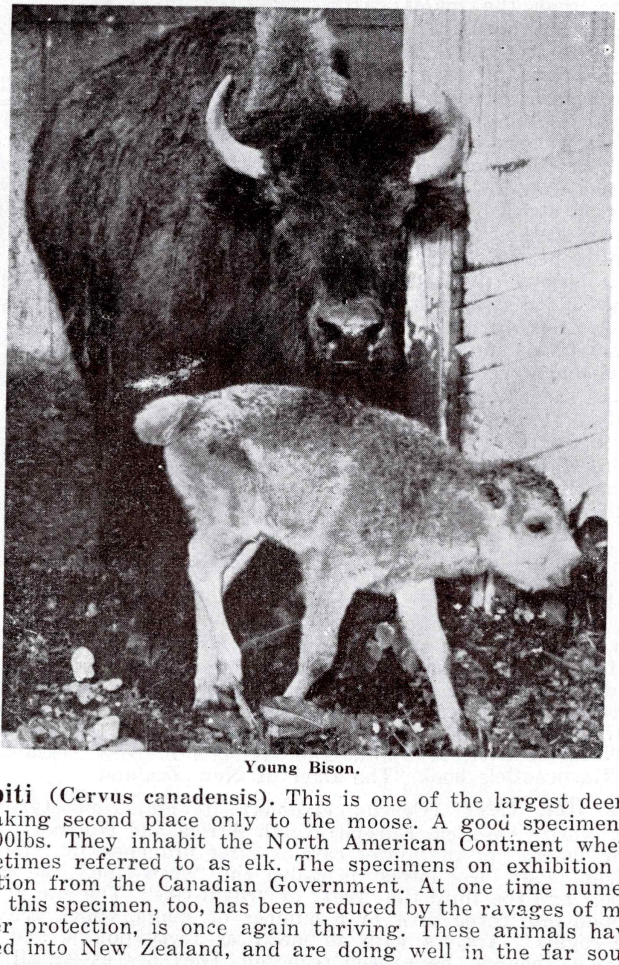
Red Deer Fawn a few days after birth.

The deer, though true ruminants, differ from all the foregoing groups in that the males carry antlers and not horns. These appendages are typically branched and at the close of each mating season are shed and replaced by a new growth in the following year. The antlers become more branched with each new development. When first formed they are covered with delicate skin which bears very fine hair known as the "velvet." Later, a ring of bone, or "burr," forms round the base of the antler, cutting off the blood supply to the velvet, which dries up and is rubbed off against tree trunks. Still later, the bone under the burr is absorbed and the antler is shed. The young of most deer are fawn-coloured and spotted with white, a patterning which serves as a camouflage among leafy growth. Tropical types such as the axis or chital deer of India retain the spotting as adults throughout the year. Those from temperate countries where leaves are shed in the autumn, such as the fallow deer, are only spotted in the summer and have a uniformly coloured coat in the winter, which is less conspicuous among leafless trees.

A number of deer from the various parts of the world have been introduced to New Zealand. The history of these introductions is an interesting study and visitors should refer to Mr. G. M. Thompson's book "Naturalization of Plants and Animals in New Zealand" and to Mr. E. Hardcastle's book "The Deer of New Zealand."

The Red Deer (Cervus elaphas) in numerous types ranges through North America, Europe, North Africa and Northern Asia. The shaft, or "beam," of the antler carries three branches, or "tines," on its lower front edge. The lowest is called the "brow-tine," the second the "bez-tine," and the third the "trez" or "royal-tine." The end of the beam may divide into three tines or a number of snags, which are described as "sur-royals." Antlers with as many as forty points, and weighing over seventy pounds, have been recorded. They are essentially weapons of combat provided by nature to ensure the survival of the fittest males. The stag, when rutting, is very dangerous, displaying paroxysms of rage and fury, and stag fights are awe-inspiring spectacles. Introduced to New Zealand, the red deer has thrived amazingly, and now, together with the chamois, constitutes a very serious pest in forest areas, necessitating its organised destruction.

The Fallow Deer (Dama dame) from Persia and the Mediterranean area is a much smaller type than the red deer, the bucks rarely standing more than three feet at the withers. The giant Irish deer, now extinct, is, however, closely related to the fallow, and from remains found in the peat-bogs of that country must have stood over six feet, with enormous antlers reaching nearly twelve feet in spread. The beam of the antler in these animals is flattened and forms a palm-like expansion, a structure which is also found in the moose and caribou of North America and the elk of Northern Europe. The fallow deer has been introduced to a number of public and private parks in Western Europe and Great Britain.



Young Bison.

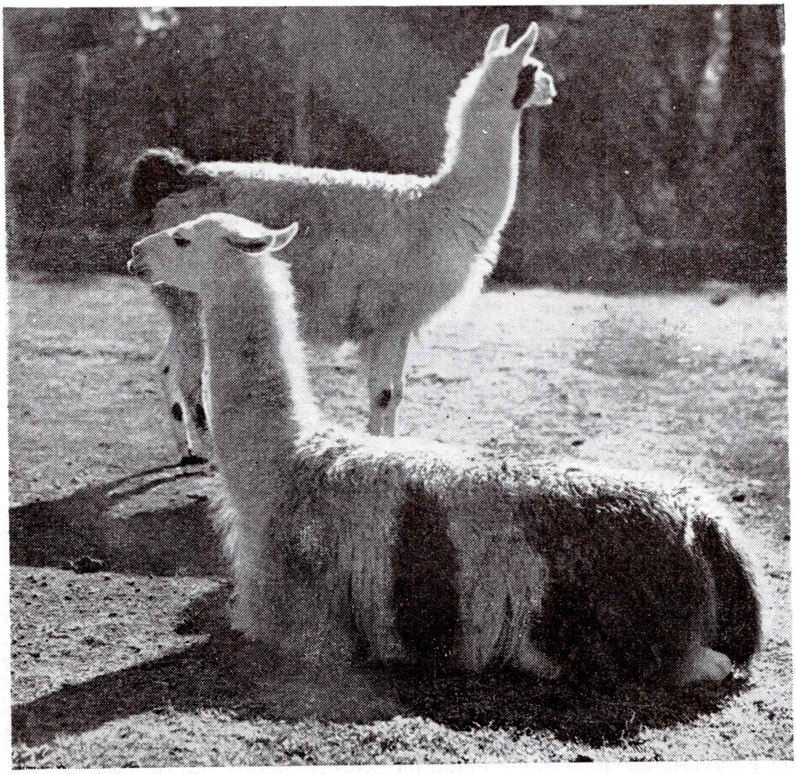
Wapiti **(Cervus canadensis).** This is one of the largest deer in the world, taking second place only to the moose. A good specimen should weigh 800lbs. They inhabit the North American Continent where they are sometimes referred to as elk. The specimens on exhibition were a presentation from the Canadian Government. At one time numerous in America this specimen, too, has been reduced by the ravages of mankind, but under protection, is once again thriving. These animals have been introduced into New Zealand, and are doing well in the far south.

The Sambur **(Cervus unicolor)** is interesting in that he does not regularly shed his antlers. This is yet another one of the deer that have been introduced successfully into New Zealand, and which have now developed to the stage of being considered a pest. The deer on exhibition were all collected in the Galatea district near Rotorua. Their native haunts range from China, from India and Ceylon to the Malayan Peninsula. They have been introduced to New Caledonia and New Guinea.

The Sikar **(Cervus nika)** is a small variety of deer. They can be divided by a slight variation of colour into Manchurian, Japanese, Formosan, etc., types. The Japanese deer (Cervus nika) in this country are found around the Rangitikei area. The interesting feature in this deer is that the spotted coat in the fawn is maintained to a varying degree into adult life.

THE CAMEL FAMILY.

The camels and their near relatives, the llamas, differ from all the foregoing grass-eaters in having neither horns nor antlers, in possessing incisor teeth in the upper jaw, and in having nails, and not hoofs, on their toes. They are, however, true ruminants remarkably adapted to life in the desert. The stomach has three compartments, of which the first two are lined with cavities which can be closed by muscular action. These are filled with water when available, and act as reservoirs, enabling the animal to go without drinking for as many as six days. Sweat glands are also restricted to a small patch of skin on the back of the neck, loss of moisture by perspiration being thus reduced to a minimum. The feet are much expanded and covered with cushion-like pads which prevent the camel from sinking into the loose desert sand. The true camels have a further provision for hard living in the form of humps which serve as a reservoir of food. The Arabian type carries one hump and the Bactrian or Asiatic camel two. When food is plentiful these humps are firm and filled with fat. At the end of a journey through barren country they will be soft and flaccid, their fat having been drawn upon to sustain the animal. Callosities are provided on the chest, knees hocks and fetlocks. These leathery pads, on which the animal rests, occur in the new-born calf, and serve to protect the underlying tissues from the friction of sand and gravel. All members of the family have hare-lips.



Llamas.

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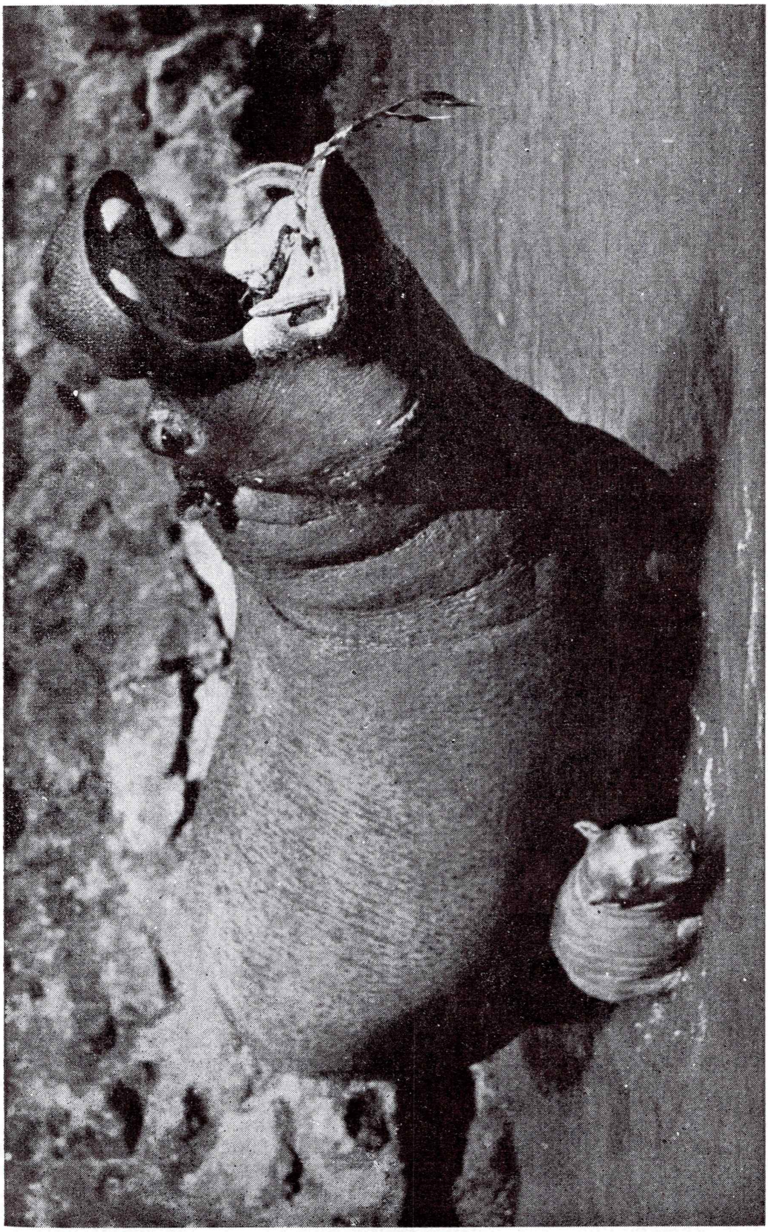
The Llama and Guanaco (Lama Manachus) are confined to South America. They differ from the camel in the absence of a hump, longer ears, narrower feet, stumpy tails and the thick coats of long, fine, woolly hair. Two types occur in the wild state—the guanaco and the vicuna—and two domesticated breeds—the true llama and the alpaca—have been derived from the guanaco. The wool of the alpaca is of great fineness and length, and has been extensively manufactured into a special cloth at Bradford and Saltaire. So-called camel's-hair fabric is spun from llama wool.

THE PIG FAMILY.

The pigs and their relative, the hippopotamus, differ from all the foregoing grass-eaters in having a simple stomach and no power of rumination. They also have four completely developed toes, the middle pair remaining distinct, and the upper joints not fused into a cannon bone. The body is either bare, as in the hippopotamus, or thinly covered, as in the pigs, with short, bristly hair. The neck is very short, but in the pigs the head is long and the muzzle ends in a movable, disc-like snout. This remarkable structure, which is supported by a special bone, is used for digging and grubbing in the soil for roots and tubers. In France pigs are specially trained to hunt for truffles, an underground edible fungus which is highly prized for its agreeable flavour.

The Hippopotamus (Hippopatamus amphibius) differs from the true pigs in the absence of the disc-like snout, and in the enormous size of the very wide head. It is an aquatic animal highly adapted to life in rivers and lakes. When water-borne the weight of the head is no inconvenience, but on land the hippopotamus frequently rests its muzzle on the ground to relieve the strain on its neck. Ears, eyes and nostrils are all sited on the top of the head, like three pairs of periscopes, so that the animal can hear, see and breathe without exposing its huge, barrel-shaped body to possible danger. The eyes stand well above the level of the forehead, and are protected by tube-like bones. A pygmy hippopotamus from the west coast of Africa, with the size and habits of a pig, has eyes and ears in the normal position on the side of the head. This is in keeping with its life on dry land, where it roots and grubs in the bush, indulging in a mud bath, but rarely taking to the water. The gigantic mouth and large teeth of the common hippopotamus enable it to deal with the vast quantities of water-weeds and grass necessary to



Nada the Lily with her latest calf.

sustain such a carcase. The two upper incisors, or cutting teeth, point downwards, but those in the lower jaw project forwards in front of the lip, acting like those of a hay sweep. The large tusks have a backward curve and, like the incisors, continue to grow throughout life. The points of the upper and lower pairs engage and are thus kept ground to a fine bevelled edge. Add seven pairs of cheek teeth on either side and the machinery is complete for cutting and grinding enough food to fill a stomach eleven feet in length and holding between five and six bushels. Short, stout legs and broad feet carry the weight of the body. All four toes reach the ground. They are protected by black, hoof-like nails, and are webbed to prevent the animal from sinking in the mud. The hippopotamus rarely swims, but runs along the bottom of the river. When at rest it will submerge, stern first, for up to five minutes. If alarmed, however, it will remain below the surface for as much as ten minutes. Both ears and nostrils are closed by muscular action during submergence. On coming to the surface the animal expels the air from its lungs and "spouts" like a whale, accompanying the action with a loud snort. The young, which are generally born singly, are carried by the mother in deep water on the back of her neck.

The hippopotamus is now only found in African rivers and lakes, but in comparatively recent geological times was widely distributed throughout Europe and Great Britain. The behemoth of the Bible is generally regarded as a hippopotamus. If this be so, it would point to its presence in Palestine within the historic era.

THE HORSE TRIBE.

Horses, asses and zebras form the most important group of hoofed animals with an odd number of toes. In their case only the middle toe functions, the second and fourth being reduced to the small, hidden "splint bones," while the first and fifth have completely disappeared. The legs of the horse and its relatives are strangely modified to give the animal great speed. The so-called knee and hock correspond to the ankles in other mammals, the true knees being tucked up and almost hidden under the skin of the body. Below the knee and hock a long, strong and solid bone, the so-called "cannon bone," extends to the fetlock, and corresponds with the middle joint of the foot. At the fetlock the cannon bone is hinged to three short bones corresponding with those of the toe. The first two bones form the pastern, while the third is flattened out and enclosed in the hoof. The horse's leg is consequently very long and endowed with a series of joints, or springs, which make for great flexibility, speed and jumping powers.

Horses, asses and zebras are very closely related and it is difficult to find any clearly distinguishing features. Differences are of degree rather than kind. The common ancestors of the group were probably all striped like the zebra, and faint striping is seen in many wild horses and asses. In most horses the mane is long and flowing and a forelock is seen, whereas in asses and zebras the mane is short and upright and no forelock is carried. Many exceptions to this rule can, however, be traced. The tail in the horse is typically covered with long hair to the root, but is only tufted at the end in most asses and zebras. The horse's ears are smaller and the hoofs broader. Vestigal pads, known as "ergots," on the back of the fetlock and "chestnuts" about the knee and below the hock are commonly seen in horses, but rarely in other members of the tribe. The only outstanding difference is found in the fact that the horse mare carries her foal for eleven months, but donkeys and zebra mares for a full year. This does not, however, prevent very ready inter-breeding. The ass, when crossed on a horse mare, produces a mule which, though generally sterile, is far hardier and for many purposes more useful than either of the parents. The zebra, when crossed with a horse, yields a hybrid known as a "zebroid," in which a growing interest is being taken.

The Domesticated Donkey in all its numerous types has been derived from an African wild ass inhabiting semi-arid country in the Nubian desert. This parent type has long, broad ears, and is of a slate-grey colour, with black and white points, including a black stripe along the spine and cross stripe on the shoulders. "Every one with a cross on its back," as the Irish say, with reference to the charming legend that this marking dates from Christ's entry into Jerusalem, "humble and riding on an ass." Under domestication the grey body colour has been intensified to form black breeds, and lightened to give the white asses seen in Egypt and Syria. The wild asses of Central Asia are fawn in colour and have much smaller ears. Domestic breeds range in size from the tiny Mahratta donkeys of India, standing only about eight hands, to the giant Poitou jackass in France, with a height of 16 hands, used for breeding heavy draught mules.

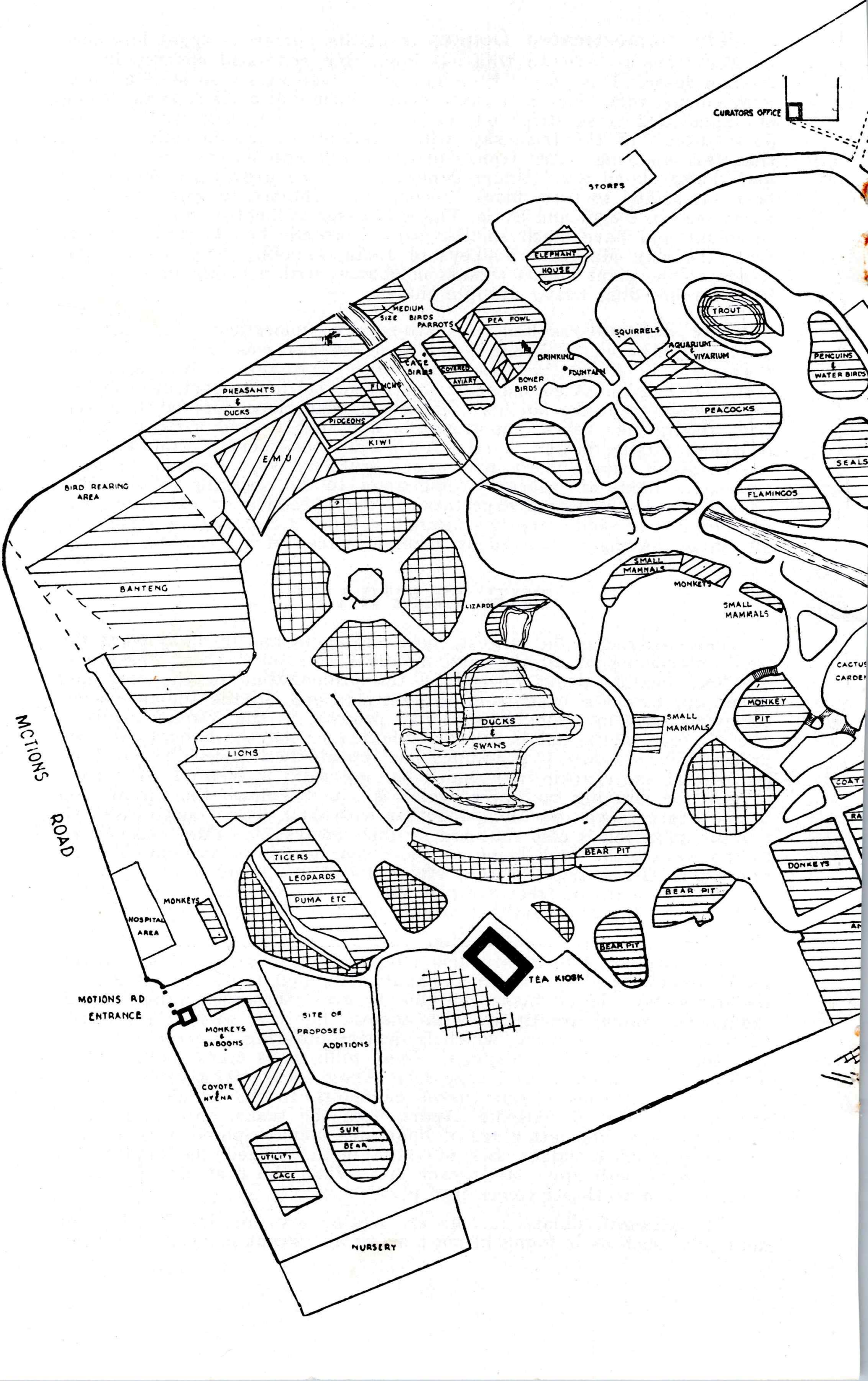
The Zebroid resulted from attempts to domesticate the zebra for draught purposes. A "four-in-hand" of zebras was driven by Lord Rothschild in Hyde Park to demonstrate that this animal could be broken to harness. A second team was inspanned to the postcart running to Pietersburg in the northern Transvaal. Experience proved, however, that, though the zebra was tractable and had a good turn of speed, it lacked staying power. A stud farm was consequently established on the Zululand coast, where wild zebra stallions were crossed on pony mares, the name of "zebroid" being given to the resulting hybrid. This mule has fully answered expectations. The specimen on exhibition has been broken to saddle and has figured in Wirth's circus. It is exceptionally large, having been sired by a horse instead of a pony stallion.

THE ELEPHANT.

The elephant is the largest, most intelligent and in many ways the most interesting of all the land mammals. Its outstanding feature is the long flexible trunk formed by the prolongation of the nose and upper lip, with the nostrils at the extreme end. In the Indian species the trunk ends in a single finger-like process; in the African elephant two of these tactile points appear. Whether or not the animal can pick up a pin, it is certain that Jamuna has repeatedly screwed the nut from the bolt of the shackle with which her leg-chain is secured. The trunk is used for drawing up water, which is squirted down the throat, and in hot weather over the back, together with dust, leaves and grass. All the animal's food is also collected by this remarkable organ and carried to the mouth, the neck being so short that grazing and browsing are impossible. Grass, fruit, bamboo stalks, twigs and small branches, palm nuts and the bark of trees are principal articles of diet. Tufts of grass pulled up by the roots are first beaten against the foot to remove earth and dust.

The elephant's teeth are also unique. Only two incisor or cutting teeth are developed, to form in the adult male huge tusks springing from the upper jaw. These tusks continue to grow throughout life, and in the young animal are tipped with enamel, but this soon wears away, leaving nothing but ivory, which is dentine differing in structure from that found in any other mammal. Small milk tusks occur in the young males, but are usually shed very soon. Their occasional persistence has given rise to stories of four-tusked elephants. In the female the tusks are inconspicuous or missing. Apart from the tusks, only four cheek teeth are seen. The latter are of huge size and composed of a number of closely packed ridges. Six of these teeth succeed one another on each side of both upper and lower jaw. When the first set of four is worn down a fresh set comes into play.

The straight, pillar-like legs are again very unusual. There is no hock joint such as is found in most mammals except man and the apes.


CURATORS OFFICE
STORES
ELEPHANT HOUSE
MEDIUM SIZE BIRDS
PARROTS
PEA FOWL
TROUT
SQUIRRELS
AQUARIUM & VIVARIUM
PENGUINS & WATER BIRDS
CAGE BIRDS
COVERED AVIARY
DRINKING FOUNTAIN
BOWER BIRDS
FINCHES
PHEASANTS & DUCKS
PIGEONS
KIWI
PEACOCKS
SEALS
EMU
FLAMINGOS
BIRD REARING AREA
SMALL MAMMALS
MONKEYS
SMALL MAMMALS
BANTENG
LIZARDS
CACTUS GARDEN
MONKEY PIT
DUCKS & SWANS
SMALL MAMMALS
LIONS
MCTIONS ROAD
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TIGERS
LEOPARDS
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HOSPITAL AREA
BEAR PIT
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TEA KIOSK
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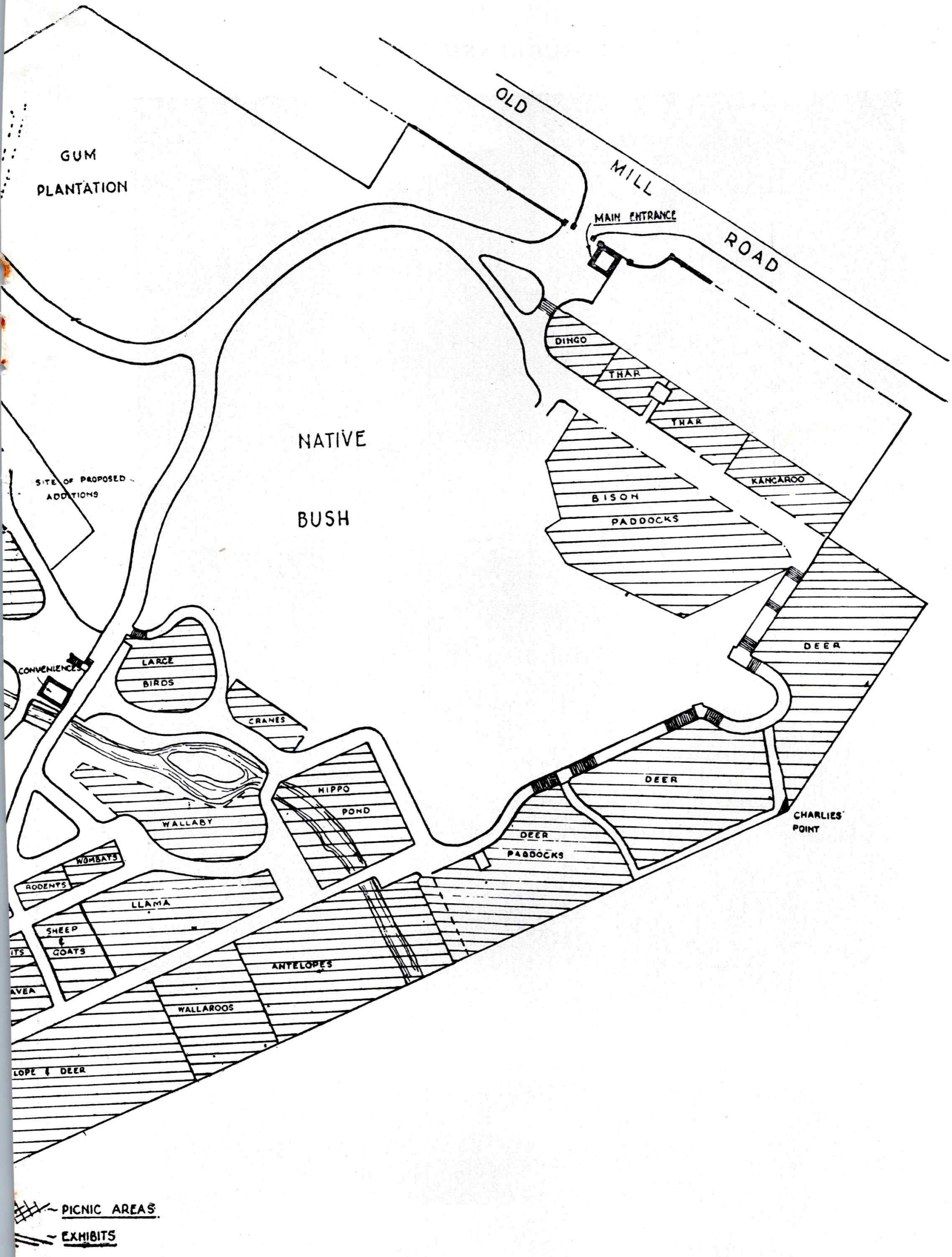
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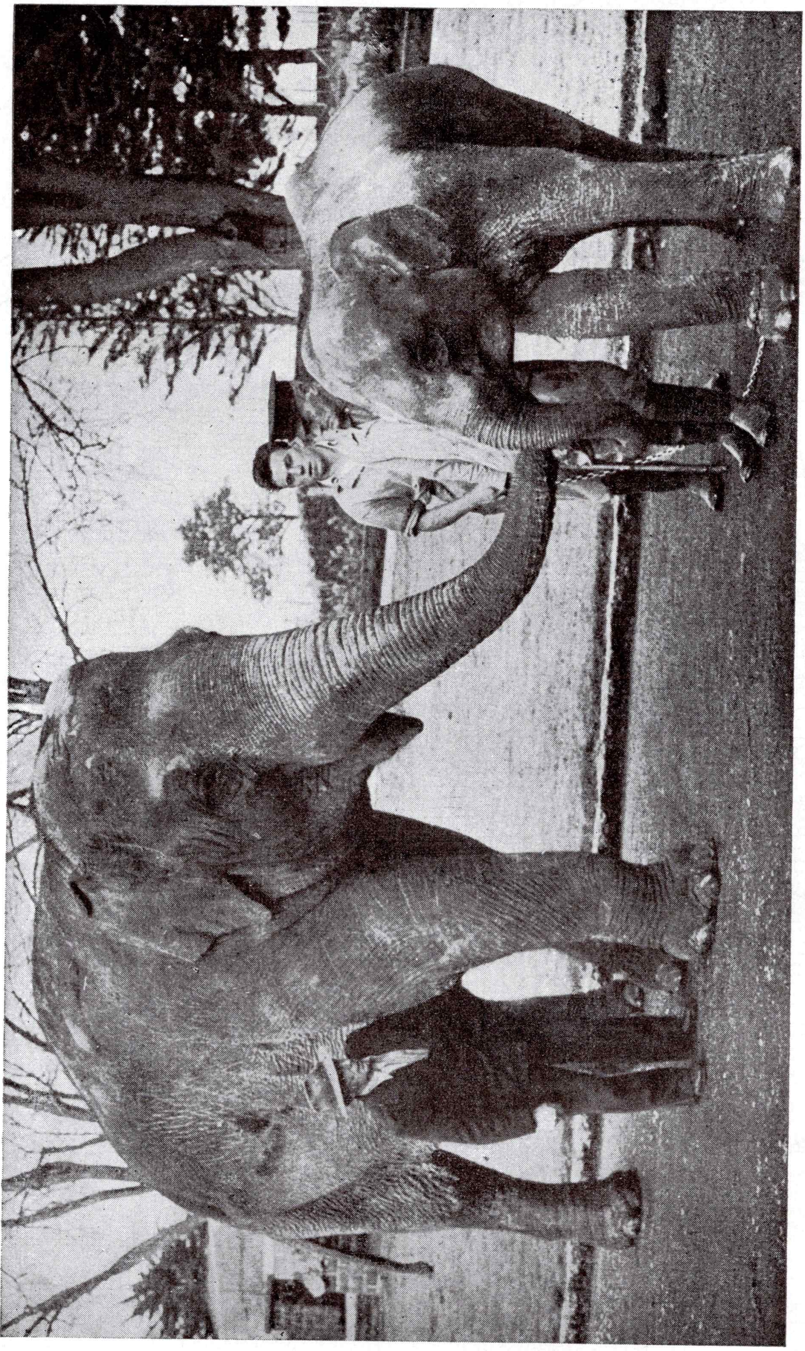
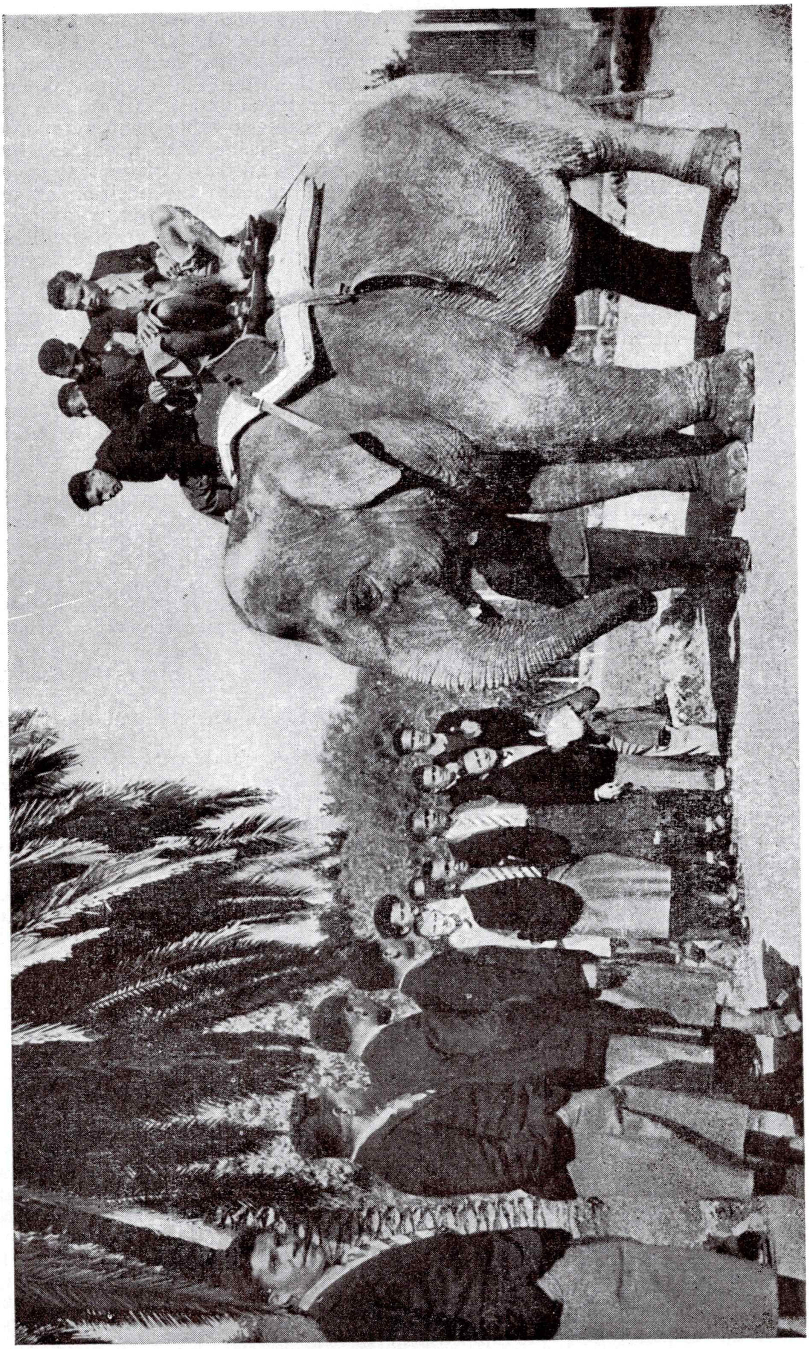
EXHIBITS



Jamuna meets Kassala.



Fiji Rugby Team meets Jamuna.

One result is that the elephant cannot jump, and a relatively narrow ditch can be used instead of a fence to contain the animal. The true knees, instead of being tucked up and almost hidden under the skin of the body, as in the horse, are well down the legs. The elephant kneels down to be saddled with the forelegs stretched out in front and the hind ones behind, an attitude which is impossible to other hoofed animals. The toes are imbedded in a mass of elastic tissue with a cushion-like sole which, like a pneumatic tyre, enables the animal to travel at speed over the roughest ground. Broad, flat nails indicate the position of the toes. The bone composing the huge skull is not solid, but contains a number of air cavities to lessen the weight. The brain is very small, an extraordinary finding in view of the high standard of intelligence shown. The udder, with only two teats, is sited between the forelegs. The skin is very thick and bare except for a few coarse hairs on the cranium and a small brush at the tip of the tail. All elephants are very fond of bathing and swim well, often with only the tip of the trunk above water level. They very rarely lie down to rest, but sleep during the heat of the day in the densest bush available. The weight of the head is then often supported by inserting the tusks in the fork of a tree. Sight and hearing in the elephant are defective, but the sense of smell is very acute. The period of gestation of an elephant is 18-22 months.

The Indian Elephant (Elephas indicus). The Indian elephant is the variety usually kept in zoological collections and for use with circuses. This is due to the greater tractability of the Indian variety. Some authorities, however, claim that it is not so much the nature of the animal that differs, but rather that there is a tradition in the Oriental countries for the training of these animals which is not present amongst the African people. The Indian elephant varies from his African relative in the following details:—

It is, on the whole, a smaller animal with shorter legs but has a heavier build.

The ears are much smaller than the African variety and the tusks are never as impressive.

The female elephant or cow has only very small tusks.

The back is high over the withers and slopes towards the quarters.

The head is high and domed and the forehead is dished as compared with the African elephant in which the head is more sloping.

Differences also occur in the pattern of the teeth and in the number of toes normally present.

There is also a difference in the "design" of the end of the trunk, the Indian elephant having only one protruberance compared with the two in the African.

"Jamuna," the larger of the elephants on exhibition, has been in the Zoo for close on 40 years, and during that period has carried several hundred thousand children around the Elephant Walk. The smaller elephant "Kassala" was purchased from Singapore and arrived early in 1952. She was reputed to be six years old at the time of purchase.

THE POUCHED ANIMALS.

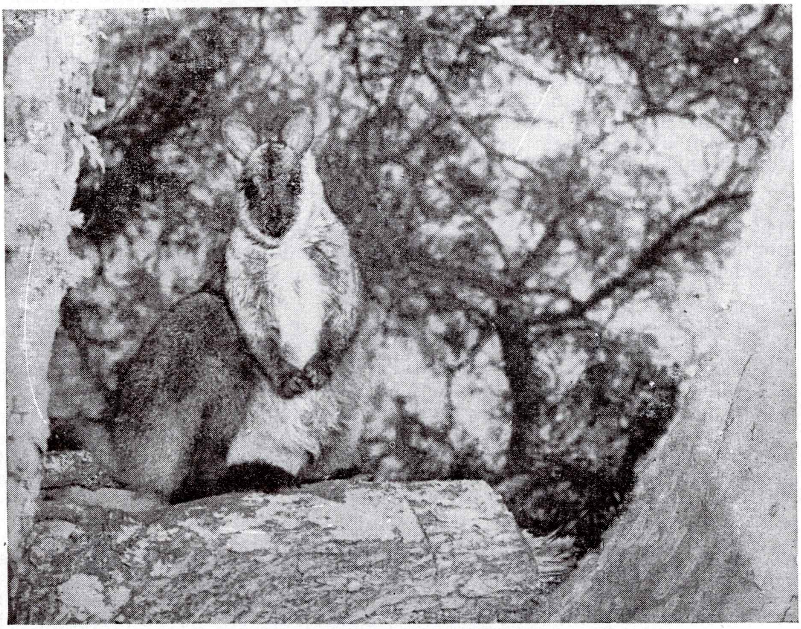
The pouched animals, or marsupials, including such forms as the kangaroo, koala, wombat and opossum, differ from all other mammals in the fact that their young are born in a very immature condition, and development continues in a fold of skin on the abdomen of the mother, which forms a pouch over the teats. When first brought forth the embryo is only about an inch in length, resembling a little lump of animated jelly. The tiny hind legs are crossed and covered by the tail, while the fore limbs are free and claw-like. For some time before birth takes place the mother's tail is carried forward between the hind legs instead of stretched out backwards in the normal fashion. How the apparently helpless little embryo reaches its mother's pouch has been the subject of much controversy and only within the past few years have detailed records been published, setting the matter beyond further dispute. It is now known that the baby kangaroo is not placed in the pouch by its mother, but crawls there by its own efforts. As soon as the baby has been dropped, the mother licks down the fur on her abdomen to make a smooth, two-inch path for the youngster. She then leans backwards so that the track is almost level, and the embryo begins to drag itself forward with sideward and backward thrusts of the claw-like fore limbs. It ultimately reaches the lip of the pouch, into which it then tumbles head over heels. The strange little tube-like mouth then glues on to the nearest of the mother's four teats, to which it remains attached for four months. The baby's muscles are, however, so little developed that it cannot suck. To meet this situation the mother's udder is provided with special muscles which contract at intervals and squirt a jet of milk into the infant's mouth. To prevent choking, "Joey's" windpipe is prolonged and connects directly with the nostrils instead of opening into the mouth. There is consequently no risk of the high-pressure milk "going the wrong way." Later on the windpipe shortens to the normal length. At the end of four months the baby is well grown and begins to take an interest in the outside world, with its head protruding from the pouch to nibble grass tips while its mother is grazing. There follows a period when Joey makes short excursions on his own account, returning hurriedly, if danger threatens, to the pouch, into which he tumbles headlong. Then comes a day when mother refuses to carry the growing burden any longer, and our young kangaroo is turned out to make his own living.

The Grey Kangaroo (Maeropus giganteus) is fairly common throughout Australia, whilst the black faced kangaroo occurs in the western portions of that country. The **wallaroo** (M. robustus) are distinct from kangaroos only by way of size and details and distribution of fur. The wallaroos prefer hilly country. With the exception of the tree kangaroo, all members of the family keep to ground level, although certain of our wallabys can climb trees, and are typically grass-eaters. The hind legs are abnormally developed, enabling the animal to make tremendous leaps, covering up to 30 feet in a single bound, and clearing logs and even fences in its stride. Each bound is marked by a thump of the tail on the ground, and this measured beat can often be heard in bush country long before the animal is sighted. The fore limbs are relatively dwarfed and are folded to the chest when the kangaroo is running. The fourth toe on the hinder foot is greatly enlarged and ends in a powerful claw, which is used as a weapon. The first toe is missing: the second and third are slender and enclosed in a common fold of skin. The teeth are remarkable in that the two incisors in the lower jaw point forwards, as in the hippopotamus, and have sharp inner edges which act like the blades of a pair of scissors.

The Wallaby (Wallabia species) is in all respects a miniature kangaroo, and definitely prefers to live on rocky terrain. As opposed to the kangaroo and wallaroo there are a number of recognised varieties of wallaby, those represented in the grounds being: black striped, black tailed swamp, black tailed rock and the dama. At the turn of the century, a number of Australian fauna were introduced by Sir George Grey to Kawau Island, and amongst those that survived and reproduced well are a number of varieties of wallaby, including the black tailed variety which is now quite rare in Australia.

The Australian Opossum (Trichosurus vulpecula). There are several recognised varieties of this animal, one of which, the Tasmanian opossum, has been introduced to New Zealand where it has spread until it occurs in all parts of both Islands, and where it is now recognised it has become a pest. This is because it enjoys both the young growing

Wombat.



Wallaby goes Tree Climbing.

shoots and fruit, and this causes severe damage not only to native bush, but to cultivated gardens and orchards. Sleeping by day, it is an extremely active climber by night, aided by its prehensile tail, which is covered with fur except on the underside of the tip and a narrow line on the under surface where the skin is bare. This device to secure a better grip was also seen in the spider monkeys. The native home of the opossum is among the giant pepper gums (Eucayptus amygdalina) of Australia, the leaves of which constitute its principal food. In this country, however, it has developed a catholic taste which includes lettuces, rose bushes, the fruit and smaller branches of peach and plum trees, bark, and a host of other unlikely substances.

The Wombat (Phascolomys mitchelli). In striking contrast to the long-limbed, long-tailed, leaping kangaroos are two other pouched animals from Australia—the koala and the wombat. Both have the appearance of pocket-size bears, but while the koala spends its days eating and sleeping in the heights of the giant gums, the wombat is a ground dweller, digging burrows in the soil or sheltering throughout the hours of daylight in holes or clefts of the rocks. It is practically blind in bright sunlight and is purely nocturnal in habit. Its shuffling gait, grunting voice, short and flattened head, broad flat back, short thick legs and stumpy tail are all very bear-like. In other respects, however, the wombat closely resembles the rodents. Two pairs of very sharp, chisel-shaped incisor teeth are very like those of the rat, and enable the animal to deal with the tough roots, grass and other herbage which constitute the bulk of its food. There are four existing types of wombat in Australia and Tasmania.

Squirrel Glider and Glider Opossum (Petaurus species). These are two species of very similar natures, the main difference being that of size. The name "Glider" is derived from the fact that they have a web of skin running down the side of the body and joining the upper part of the front limbs to the upper part of the hind limbs. The animals are able to leap from one tree to another by spreading out their four limbs and using this membrane in the nature of a parachute. The specimens are nocturnal by habit, and are only occasionally seen during the daytime.

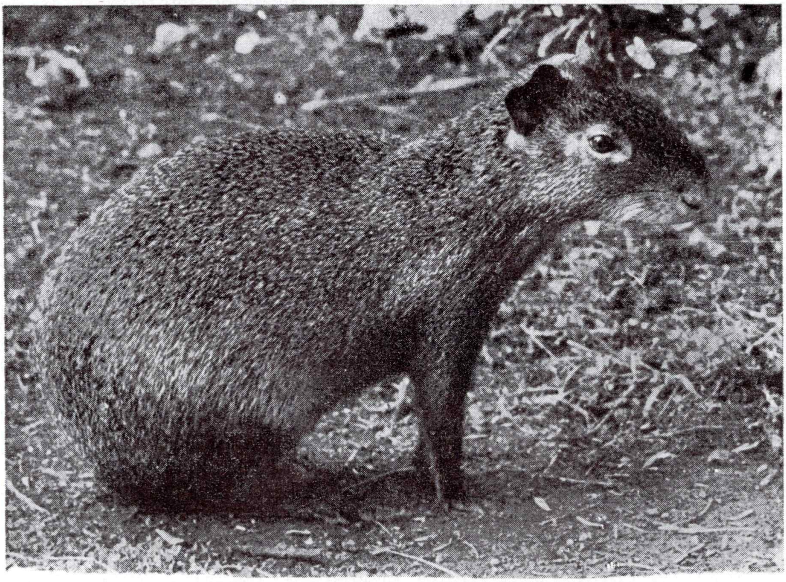
THE GNAWING ANIMALS

This group is divided into two orders, the lagomorpha, which includes the hares and rabbits, and the rodentia which covers most of the other gnawing animals. The incisor teeth have been developed to an abnormal degree, but the canines or eye teeth are completely absent. The incisors grow continually throughout life, and rely upon grinding against their opposite number to be kept within normal limits.

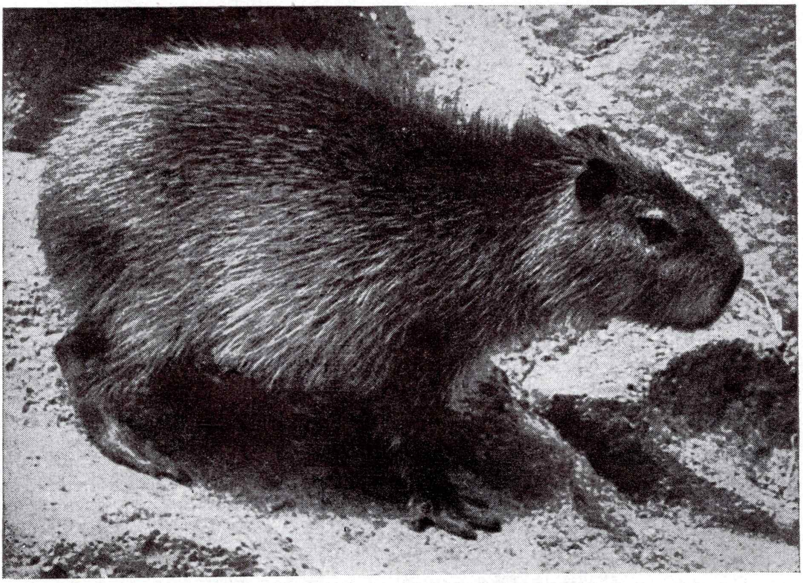
This group covers a wide variety of animals, and includes a number of animals which have been accepted as children's pets in many parts of the world.

Rabbits. As the result of selective breeding, a very large number of different varieties of rabbits have been developed which vary from fancy breeds such as Old English and Dutch rabbits to the long haired Angora rabbits reared commercially for their fur. Other rabbits are reared for their pelt, and include the sable martin, the black and tans, blue beverans, etc. The development over recent years of the rex rabbit, in which only the under fur without any guard hairs grow, has meant that all the breeds can be developed with this abnormality. This stimulated commercial rabbit rearing in Europe.

Cavea or Guinea Pig (Cavia porcellus). This animal is always in demand as a pet. The specimens at the Zoo are the long haired Peruvian variety.



Agouti.



Capybara.

Many of the most interesting rodents come from South America. Examples in our collection are the **Capybara** (Hydrochoerus hydrochoeris) which is the largest rodent in the world, growing up to four feet long. It lives along the banks of the Amazon. It is fortunately a very mild creature for its size.

Living close by, too, is the **Nutria** or **Coypu** (Myocagtor coypus), once hunted extensively for its fur. This animal is very similar to the North American beaver except for the shape of its tail.

The Agouti family (Dasyprocto) are all attractive, and the **golden Agoutis** on exhibition are one of the most fascinating. When seen in the sunlight their coat has a very distinct golden sheen.

Squirrels. These delightful creatures occur in many parts of the world. Those on exhibition are the red squirrel from America. A near relative is the grey squirrel (Sciurus cinereus), which was introduced to Great Britain and is steadily ousting the native red squirrel of that country.

The Porcupine (Acenthion brachyurum). The porcupine family is distributed fairly well throughout the world, the specimen on exhibition being the Malay porcupine. This has particularly well developed quills, although they are less dense than the quills of the American relative. The porcupine arrived as youngsters, and have become very tame. They very much enjoy being given a young branch to gnaw at as they appreciate the softer tissues directly under the bark. The story that porcupine can "shoot" their quills is not true.

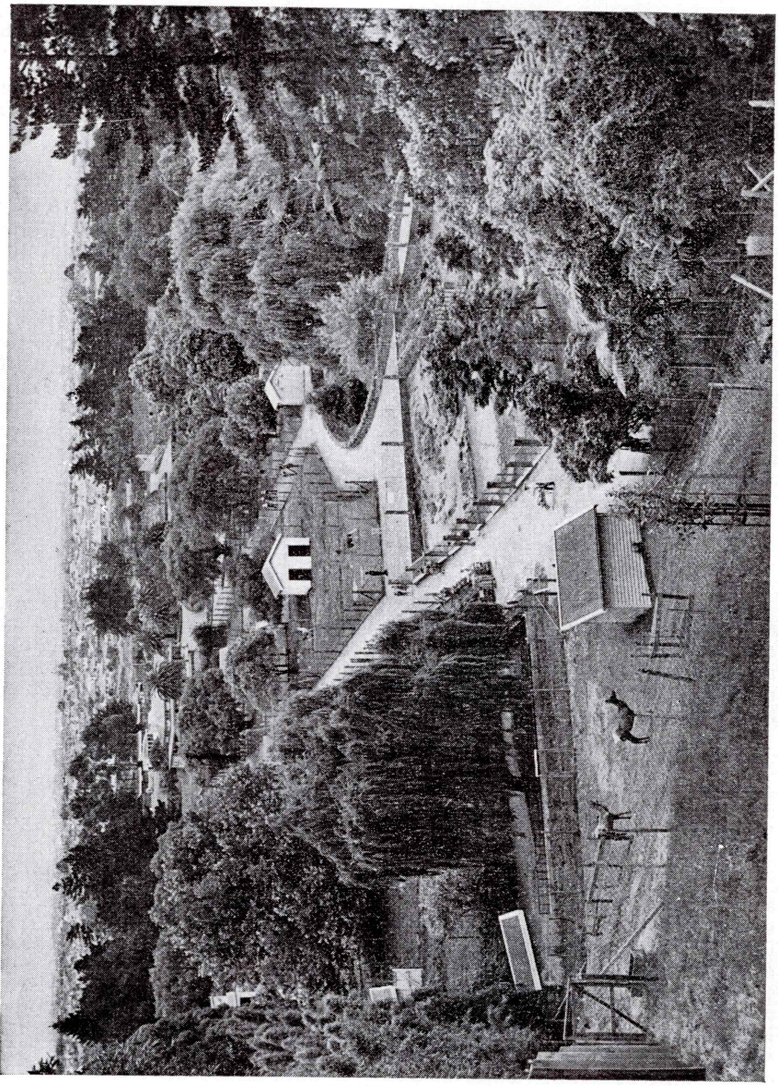
THE EGG-LAYING MAMMALS.

Australia offers many strange forms of animal life, but the most remarkable of all are two primitive mammals—duckbill or platypus, and the spiny ant-eater, or echidna—the young of which are hatched from eggs and then suckled with milk secreted by the mother. This milk is drawn from a number of small pores in the skin of the abdomen and not from teats as in all other mammals.

Both forms have mouths resembling birds' beaks, without teeth, in the adult stages. The platypus and echidna form, however, a more definite connecting link between the reptiles and the mammals. The skeleton has many reptilian features; the males bear spurs on the hind legs, and there is only a single excretory aperture in the body.

The Echidna or **Spiny Ant-eater,** of which there are only two species with five and three toes respectively, inhabits Australia, Tasmania and New Guinea. It is specially adapted for burrowing and living on ants. The upper surface of the body is clothed with a mixture of stiff hairs and short, thick spines. The head is small, with a long, slender, beak-like snout covered with skin. At the end of this snout are situated the tiny nostrils and the very small mouth. The tongue is long, cylindrical and extensile as in all other ant-eaters. There are no external ears and the tail is a mere stump. The short, stout legs carry strong digging claws. Both species live almost exclusively on ants.

During the breeding season the female develops a nursing pouch on the abdomen in which the single egg is placed by the mother's beak, and later hatched. The shell is broken by a heavy knob at the tip of the muzzle of the young. For some weeks the young echidna is carried in the pouch, and then removed by the mother for lengthening intervals, returning from time to time for milk. Finally it is hidden in some safe retreat, and soon becomes self-supporting.



View of Zoo from Charlie's Point.

THE BIRDS

Following upon a severe outbreak of Fowl Pest in Great Britain and other parts of the world in 1951 the importation of birds into New Zealand from any other part of the world other than Australia was stopped. This, following upon an already severely restricted market, meant that the only birds we could exhibit, apart from a few that are the offspring of earlier exhibits, are our own native birds and Australian species.

A NOTE ON THE BIRD RUNS.

A number of different kinds of birds are housed together in order to make an attractive exhibit. This, however, sometimes leads to confusion to visitors to the Zoo. So far as possible, birds of similar size and habits are mixed together. This makes a more real atmosphere, and they seem to enjoy the companionship. In certain cases, however, particularly in connection with the pheasants, it has been found that not more than one cock bird of any one species can be put in a run if there are hen birds of the same species present. This means that, especially during the breeding season, cock birds have to be distributed over a number of runs, so that this section will always be a little bit of a puzzle to visitors unfamiliar with the area.

NEW ZEALAND NATIVE BIRDS.

The legislation in this country makes it an offence to "molest or keep in captivity" almost all the native birds, and this restriction applies as severely to us as it does to private individuals. However, we have recently been allowed certain privileges and are therefore able to exhibit the following specimens:—

The Kiwi. This bird is of course the national bird of New Zealand. He is related to the emu and cassowary of Australia and New Guinea, the rhea of South America and the ostrich of South Africa. All these birds have the same characteristics in common:—

They are flightless. The wings of the kiwi are about an inch long and have no feathers; those of some of his relatives are somewhat larger but in no case can any attempt of flight be made. The flight muscles are very small, and because of this the sterrum or "keel" of the breast bone which normally anchors the flight muscles of birds does not exist in the kiwi.

The tail is primitive except in the case of the ostrich.

They have strong legs with which they can put on a good turn of speed. The leg is also used for defence, the kick being made in a forward and downward direction.

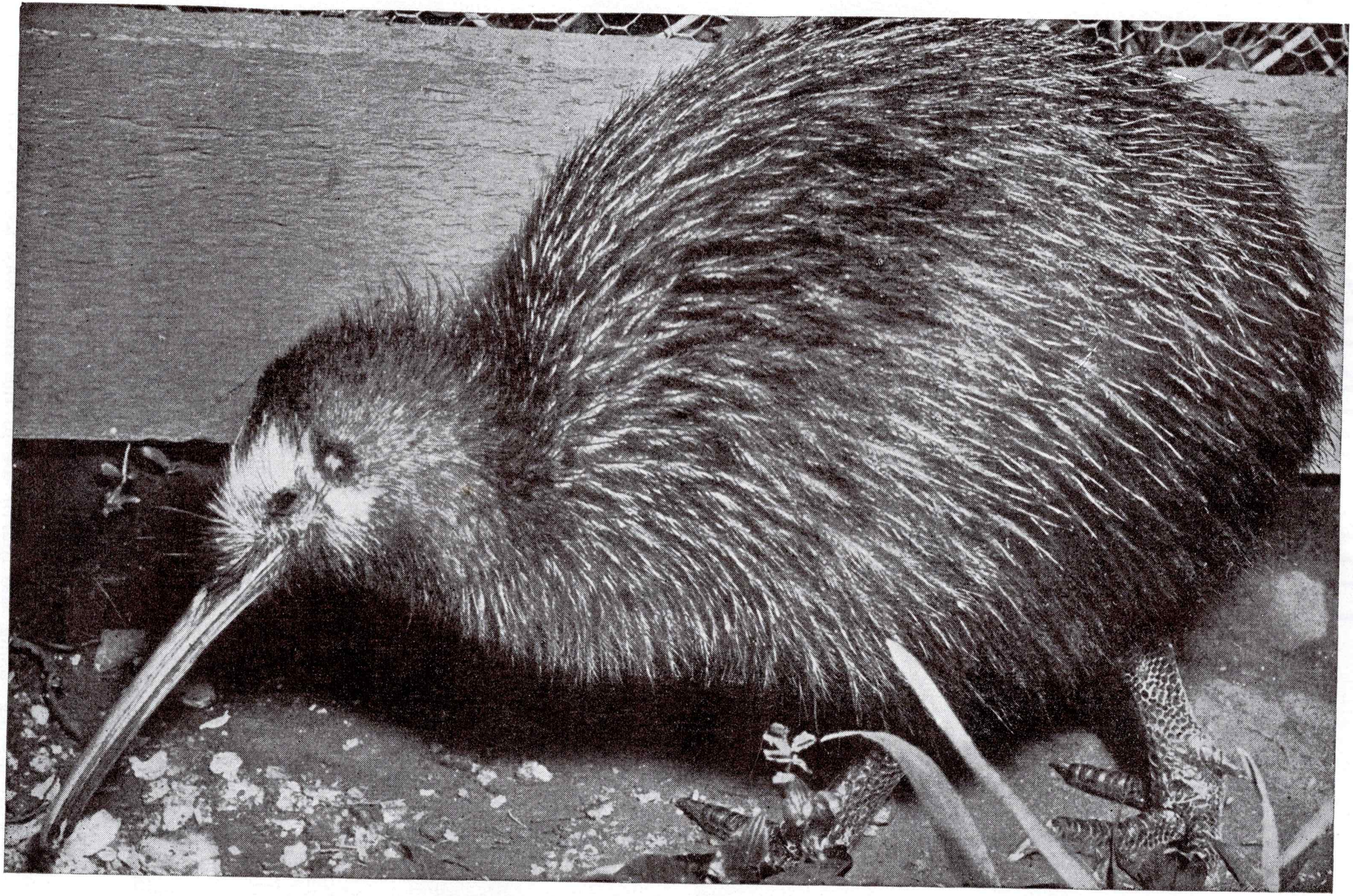
The feathers have an untidy look. This is due to the absence of barbicels which hold together the elements of the feathers (the barbules) in most birds, and thus give the well preened look.

These characteristics were also shared by the now extinct moa and its relatives which used to inhabit New Zealand.

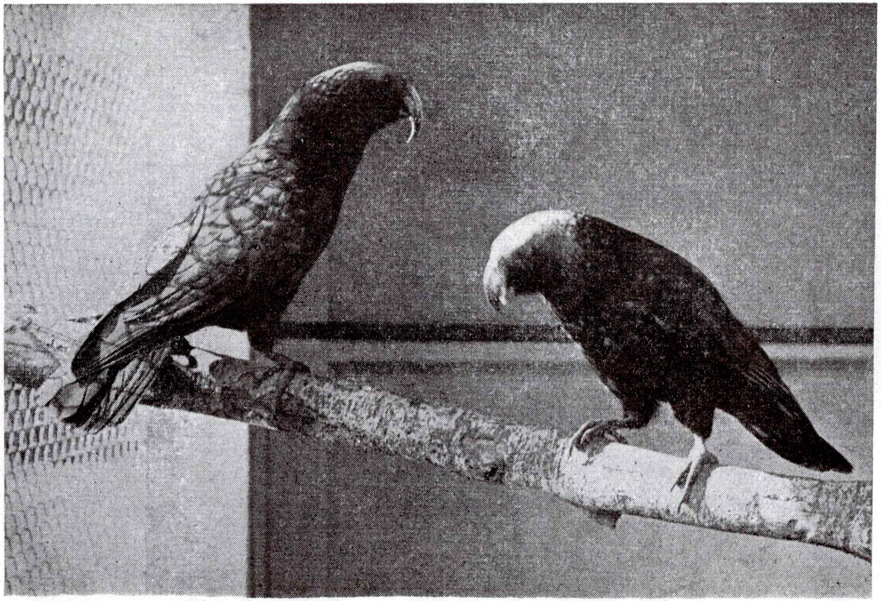
There are four varieties of kiwi in New Zealand:—

The North Island kiwi (Apteryx mantelli). (A rich brown and black colour with a harsh feel to the feathers.) The South Island kiwi (A. australis). (A greyer appearance to the feathers and has a soft feel.) The small grey or small spotted kiwi (A. owenii) and the large grey or large spotted kiwi (A. haastii).

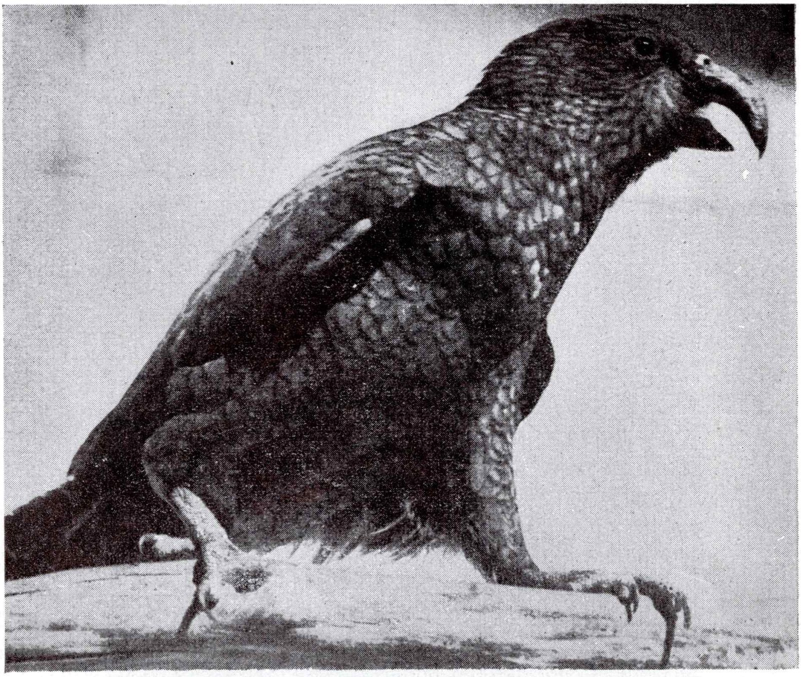
These last three are confined to the South Island. Kiwis are strictly nocturnal birds and since they inhabit dense bush country (particularly the North Island kiwi) they are only rarely seen. They are, however, by no means uncommon and their highly distinctive cry can commonly be heard in a number of parts of both islands. Although flightless the kiwi is well able to defend himself with snapping of the beak, and kicks with his leg, using the fourth toe in the same way as the spur of a fighting cock.



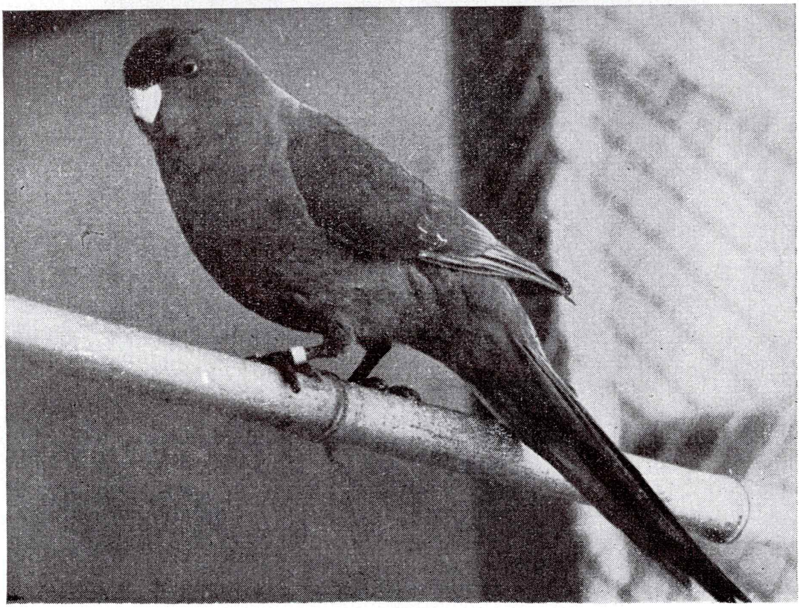
Apteryx Mantelli—the North Island Kiwi surprised by a Flashlight Photograph.



Kaka.



Kea.

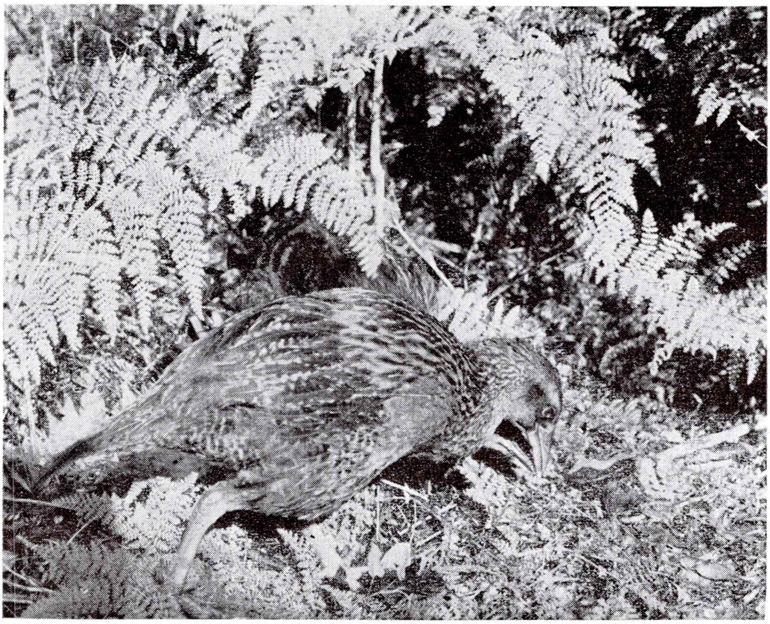


Kakariki.
NEW ZEALAND NATIVE PARROTS.

The kiwi enjoys a variety of food which it gathers by thrusting its beak into the ground in search of worms and insects and by exploring crevices, rotten stumps, etc. Spiders, beetles, centipedes, millipedes and a number of native berries form an important part of his diet. In captivity they thrive on meat and worms.

A very large egg weighing nearly one pound is incubated by the male who sits for seventy-five days before the young hatch out. The young are fully fledged at hatching and within forty-eight hours are able to fend for themselves. The female kiwi is distinguished from the male by the longer beak.

Because of the nocturnal habits of the kiwi the bird is put on exhibition for limited periods only.



North Island Weka.
—By courtesy of National Publicity Studios.

The Weka. Again there are two varieties — the North Island (Gallirallus greyi) and the South Island (Gallirallus australis), the latter being distinguished particularly by having red legs. These birds inhabit the bush floor and are voracious hunters. They are said to tackle rats with impunity and can break the shells of the large kauri snails with no difficulty at all. The specimens on exhibition are the North Island weka which, at one time, was particularly common but is now confined to quite local areas. It is hoped that ultimately the birds on exhibition at the Zoo will breed and that the offspring can be used for re-stocking purposes.

The Kaka. This is one of several members of the parrot family that are to be found in New Zealand. They have the typical features of this group—two toes pointing forwards and two backwards and the upper beak mobile.

Once again we find North and South Island varieties, Nestor occidentalis occurring in the North Island, the green or South Island kaka being Nestor meridionalis. It is the latter variety which we have on exhibition. These birds still occur in both islands and appear to be multiplying in the North Island at satisfactory rates, reports having been received that they are present around Auckland.

A bird of the deep forest, they are usually only seen as a flash of colour amongst the treetops. In addition to the usual raucous parrot-like noise they have a soft flute-like whistle.

The Kea **(Nestor notabilis).** These birds occur only in the South Island. The kea has earned for himself an unenviable reputation as a killer of sheep, although, even today, opinion is sharply divided as to whether this reputation is or is not deserved. Evidence to date suggests that certain birds do develop the killing habit and undoubtedly keas will feed on carcases of sheep and may often receive the blame when actually they have not been the cause of death.

They are now chiefly confined to the high country in the mountainous areas. They are great scavengers, and visitors to ski-ing grounds soon learn not to leave out leather goods overnight as these are liable to be eaten by these birds.

Although of a drab colour they have bright orange feathers under the wing which become conspicuous when the birds fly. The male is distinguished from the female by the more pronounced hook to the beak.

The Kakariki. There are several varieties of native parrot or kakariki. The two most commonly encountered being the red-fronted (Cyanoramphus novaezelandiae) and the yellow-fronted (Cyanoramphus auriceps).

In the early days the native parrakeets caused considerable trouble to settlers by sending in flocks to their crops which they rapidly devoured. They are now by no means so plentiful, and the red-fronted parrakeet specimens, which are on exhibition, are only found in the North on the islands of the mainland where they are plentiful. They breed readily in captivity and there seems no risk of their becoming extinct.

The Pukeko **(Porphyrio melanotus).** The pukeko or swamp hen is known throughout the North Island, occurring wherever swamp land exists. It is related to the now famous takahe or notornis and is the same bird that occurs in Australia under the name of eastern swamp hen.

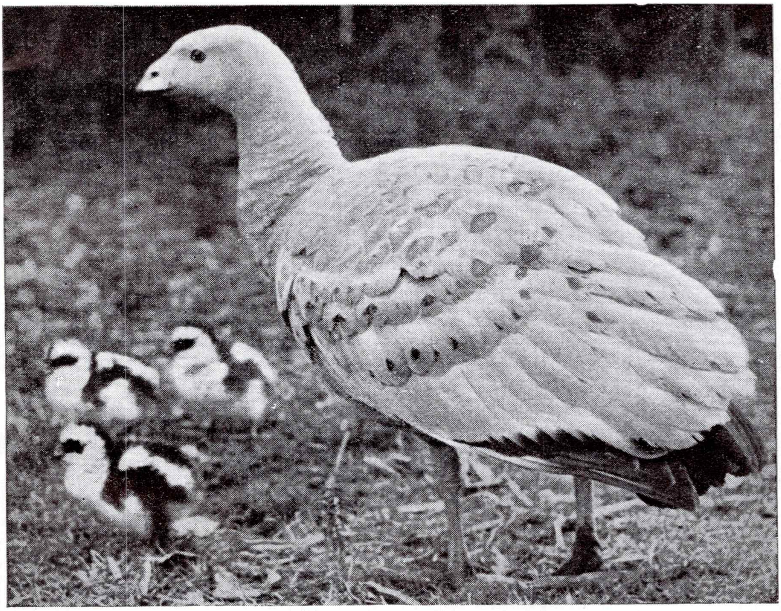
It is difficult to realise that the bright blue of the breast feathers is not actually a pigment, but like the colours in the peacock's tail is caused by refraction.

The Paradise Duck. New Zealand is rich in various forms of duck, several specimens of which are confined to the Dominion. One of the most delightful of these is the paradise duck (Casarca variegata). The bird is more common in the South Island than the North and, in fact, the authorities are anxious that it should not develop too widely in the North Island, for flocks of this duck can, in the course of their grazing, do substantial damage to the grass in dairy-farming paddocks. The duck is particularly interesting in that the female with her white head and chestnut plumage is more attractive than the drake, which is more predominantly black.

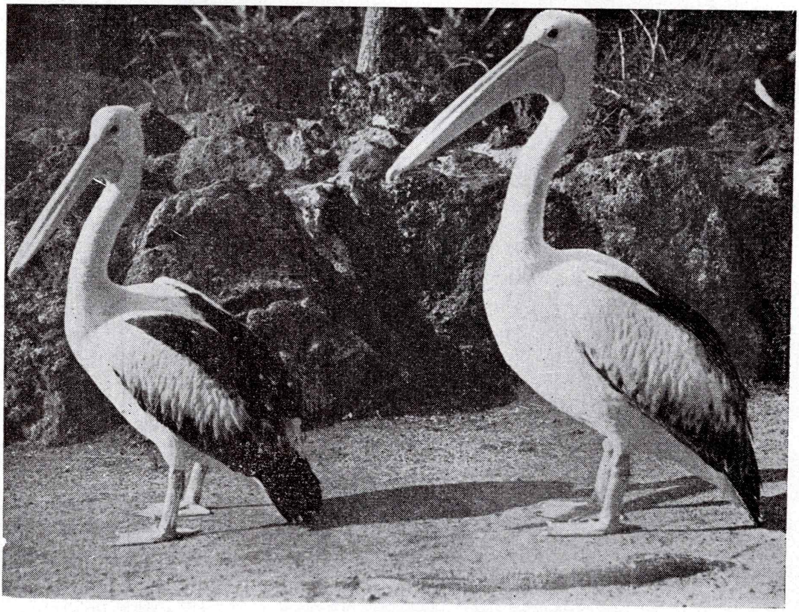
Observations of the mating behaviour also suggest that it may be the female who is the prime mover in looking for a mate. Like so many other water fowl the young are striped black and white. They grow very rapidly and within six months they achieve adult plumage. At about two months, however, it is difficult to distinguish male from female.

The Grey Duck **(Anas superciliosa)** occurs generally throughout Australasia. The bird can easily be mistaken for the female mallard from which it can be distinguished by the green speculum. The male is not readily distinguished from the female. The speculum in the mallard is purple.

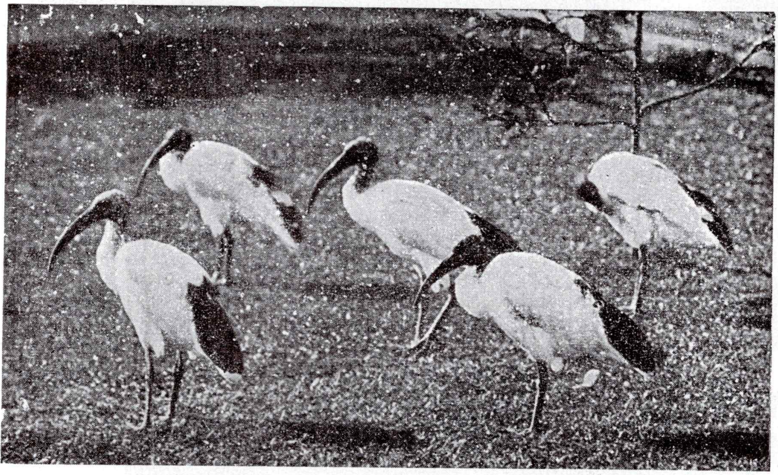
Male Emu
with Chicks.



Cape Barren
Geese
and Young.



Australian Pelicans.



Ibis.

The Grey Teal (**Querquedula gibberifrons**). This attractive little bird also occurs throughout Australasia. They are particularly fascinating because of the small size. The specimens on exhibition were bred by Mr Welsh in the Wairarapa who presented them to the Zoo.

The New Zealand Scaup or **Black Teal** (**Fuligula novaeseelandiae**). These birds are found only in New Zealand. They are expert underwater swimmers. One of the more famous breeding areas is Lake Rotorua, and our specimens were bred and presented to the Zoo by Mr Fitzgerald, a well-known aviculturist of Tauranga.

The Morepork (**Ninox novaeseelandiae**). This little owl is the same as that occurring in Australia under the name of boobook. Although his food consists chiefly of grubs of various varieties the bird does not find favour with aviculturists as the morepork is not opposed to feeding of young birds. The call from which his name is derived is very characteristic and must have been heard by everyone who has lived in New Zealand.

The Sacred Kingfisher (**Halcyon sanctus**). This is the only form of kingfisher which occurs in New Zealand and also occurs in Australia. Unlike the British kingfishers his range is not confined to the large streams and the seashore, although he is not far away from some water. The bird is very useful and feeds on all varieties of insects and grubs, many of which are harmful to crops. The birds on exhibition are the progeny of a clutch which were rescued after cats had killed their parents.

AUSTRALIAN BIRDS

Australia is rich in bird life and includes many groups which are not represented in New Zealand.

One of the features of Australian bird life is the great variety of parrots that occur there. For many years there has been an embargo on the importation of such birds into New Zealand as the Health Authorities were worried about the possibility of introducing a disease called psitticossis. However, as this Guide goes to print there comes the welcome news that the ban on parrots has now been lifted. It is impossible, at this stage, however, to say what we will be able to obtain within the next few years.

At present in the grounds will be found specimens of the various types of budgerigar, of cockatiel and of the sulphur-crested cockatoo The changes of the budgerigar have been closely studied over the last few years and it has been found that a multitude of factors have a bearing on colour. There appear to be two blue, one yellow and a series of pattern factors which can produce a very wide range of configuration.

The Emu (**Dromaius novae-hollandae**). This is the second largest bird known in the world, the pride of place going to the ostrich. The emu shares many characteristics of the kiwi for it, too, is flightless. Emus formerly occurred in all parts of Australia but have now become extinct in Tasmania, and are considerably reduced in numbers on the mainland. Their presence is frowned upon by farmers who claim that they damage paddocks and crops and the bird is now more commonly seen in zoological parks than in its native state.

It is difficult to tell male from female, the only guide being a noise similar to distant drumming which the female makes.

The bird lays a large egg about five inches long which is dark green with a tough shell and an uneven surface. The eggs are incubated for 56 days, the entire incubation being undertaken by the male who also looks after the youngsters once they are hatched out. The young are striped in white, buff and black with a "dazzle" pattern on the head which makes very good camouflage for the young birds.

The Black Swan **(Chenopis atrata).** These birds are now so common in New Zealand that it is difficult to realise that they are actually Australian birds that have been naturalized over here. However, they are not common in many parts of the world and quite big prices are offered by animal dealers in India and Europe.

The Brush Turkey **(Alectura lathami).** This bird is a representative of the mound building birds. Instead of building a nest the male forms a nest of decaying leaves and other vegetation in which eggs are laid. Generally the heat from the decaying materials hatches out the eggs. The young are able to fend for themselves on hatching out.

As may be expected the brush turkey has very large feet and the male bird is able to shift a number of leaves several feet during the day, the size of the pile being surprising to anyone unfamiliar with the habit.

The Cape Barren Geese **(Cereopsis novae-hollandiae).** This very attractive bird has certain features which make him unique and he is the only member of his genus. They occur only in Australia in now quite limited areas and are stated to be becoming rare. The birds, however, are breeding quite well in our Zoo here. They are pugnacious birds, and it is difficult to keep any number together without casualties occurring.

The Maned Geese **(Chenonetta jubata).** This bird is much smaller than the Cape Barren Goose, and in fact is no bigger than the **plumed tree duck** (Dendrocygna eytoni) which shares the same enclosure. Both these birds are fairly well distributed over Australia and inhabit swamps. lakes and similar places.

The Ibis. Ibis occur in many parts of the world and three varieties are found in Australia, the **glossy ibis** (Plegadis falcinellus), the **straw-necked ibis** (Threskiornis spinicollis), and the **white ibis** (Threskiornis molucca). They are well distributed over the whole of Australia and are well thought of, as they feed extensively on insects which can cause damage to crops. They are water-loving birds.

Both the straw-necked and white ibis are on view at the Zoo.

The Stone Curlew **(Burhinus magnirostris).** This is another bird that frequents marsh areas and is very similar in appearance to stone curlews in many other parts of the world. This bird is frequently seen in private collections in Australia and takes well to such circumstances.

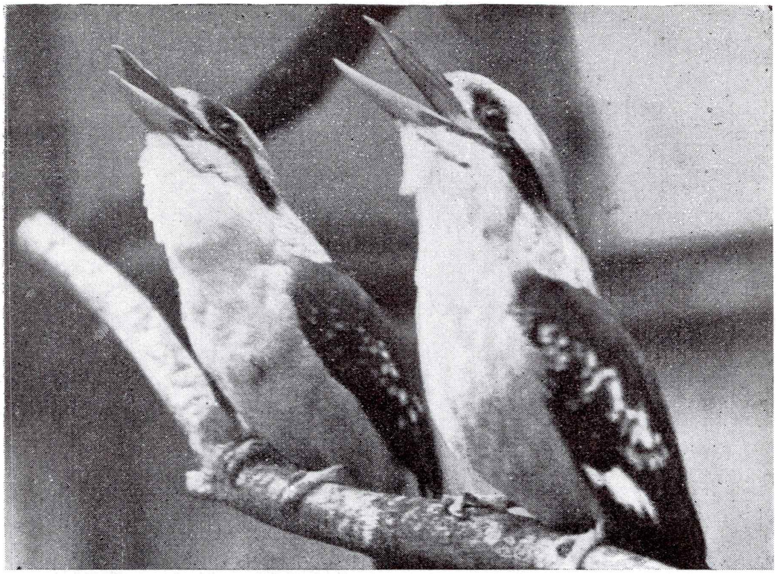
The cry of the stone curlew is typical, although it is, in some ways, not unlike that of the kiwi.

The Kookaburra or **Laughing Kingfisher** **(Dacelo gigas).** It will be well known to those who have visited Australia, for its raucous cry is heard at the very break of dawn anywhere along the east and south parts of that continent.

It lives on all manner of insects, lizards, small crabs, etc., and will attack rats and mice if they venture into their enclosure.

The bird was introduced to Kawau Island at the beginning of the century and has become established on a small area of the coast near Warkworth.

The Bower Bird. These birds are of interest because of their habit of building and decorating a bower as part of their mating behaviour. The bower is not in itself a nest and it functions primarily in order to stimulate the female to egg-laying. Two varieties are on exhibition. They are the **satin bower bird** (Ptilonorhynchus violaceus) and the spectacular **regent bower bird** (Sericulus chrysocephalus). The satin bower bird decorates its bower with yellow and with anything purple which is the same colour as the eyes of the female bird. Violets and purple salvia are their favourite medium. The male takes a number of years to mature and until he has developed his purple plumage he is identical with the female in having a greenish-brown plumage.



Kookaburra or Laughing Kingfisher.

Stone Curlew.

Lady Amherst Pheasant.

The Crows. Both the **white-back magpie** (Gymnorhina hypoleuca) and the **black-backed magpie** (Gymnorhina tibicen) have been naturalised in New Zealand. Specimen of the former will be found in the Zoo. These birds are good mimics, and not only can they whistle popular tunes if so taught but can also learn to speak. The Australian magpie in captivity has been taught to speak both in English and Maori.

The Australian Finches. Australia is rich in a number of very attractive types of finch and a representative collection will be found in the smaller avaries.

BIRDS FROM OTHER COUNTRIES.

The Pheasants. The majority of the pheasant family originate from South-east Asia, but over the centuries have been bred in so many parts of the world that their origin is often lost sight of. They are birds that take well to captive conditions and always put on a spectacular display. The **silver pheasant** (which relies very much on the red and blue colouring of the head for its attractiveness), the multi-coloured **golden pheasant**, the more subtle-hued **Lady Amherst pheasant,** the **speckled Reeves** and the **Indian Nepal pheasant** will be found in our collection. Also present are the **ring-necked Mongolian pheasants** and the dark hued **melanistic mutant** of this which in itself is a very delightful bird. The hen birds are, by comparison, unattractive and are normally not put on exhibition.

A large number of cock birds can be put on exhibition provided no hen bird is present. Should this be the case fighting is sure to follow. For this reason it is sometimes necessary to split up pheasants into small groups if we are carrying more hen birds than we can house behind the scenes and this sometimes makes the exhibits slightly confusing to identify.

The **razor-billed curassow** (Mitua tuberosa) from South America is also grouped amongst the pheasants. This is an odd looking bird which, at first sight, reminds one of the New Zealand notornis.

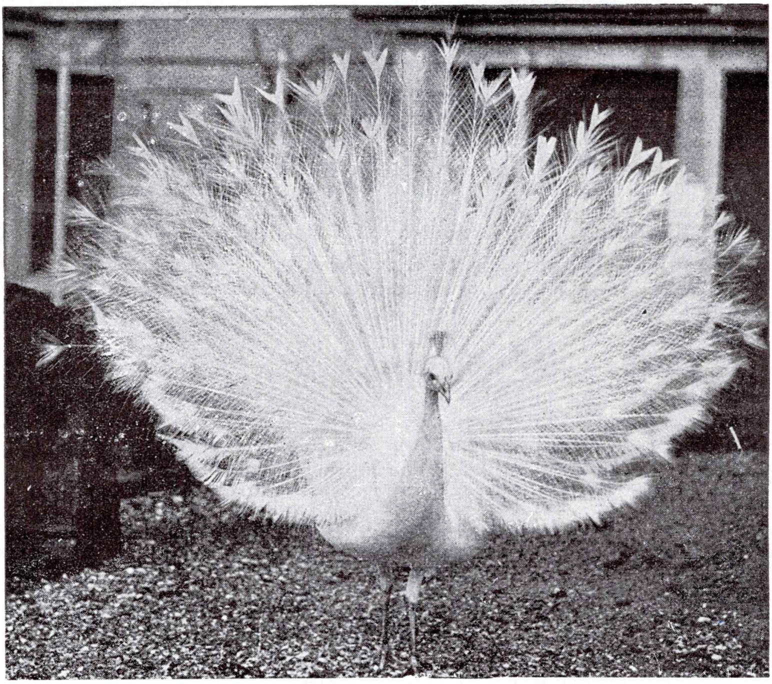
The Peacocks. Here again is a bird world renowned for the spectacular display of the cock bird and which has now been reared in so many countries that its Oriental origin is often lost sight of. It is difficult to realise that the intense blue that characterises the **Indian peafowl** (Pavo cristatus) is due purely to refraction of light and is not due to any pigment in the feathers itself. The hen of this variety is dull by comparison. However, with the **green Java peacock** (Pavo spicifer) the hen bird shows well by herself and only suffers in comparison to her mate.

Also present in our collection is the fascinating **white peacock.**

The Macaws (Ara ararauna). These South American parrots are always a great favourite in any collection. They make up for the brilliance of their display by the raucous noise that they utter. They have limited powers of flight and progress mostly by clambering. This is typical of all members of the parrot family, and the formation of the foot with two claws pointing forward and two backward assists mostly in this facility.

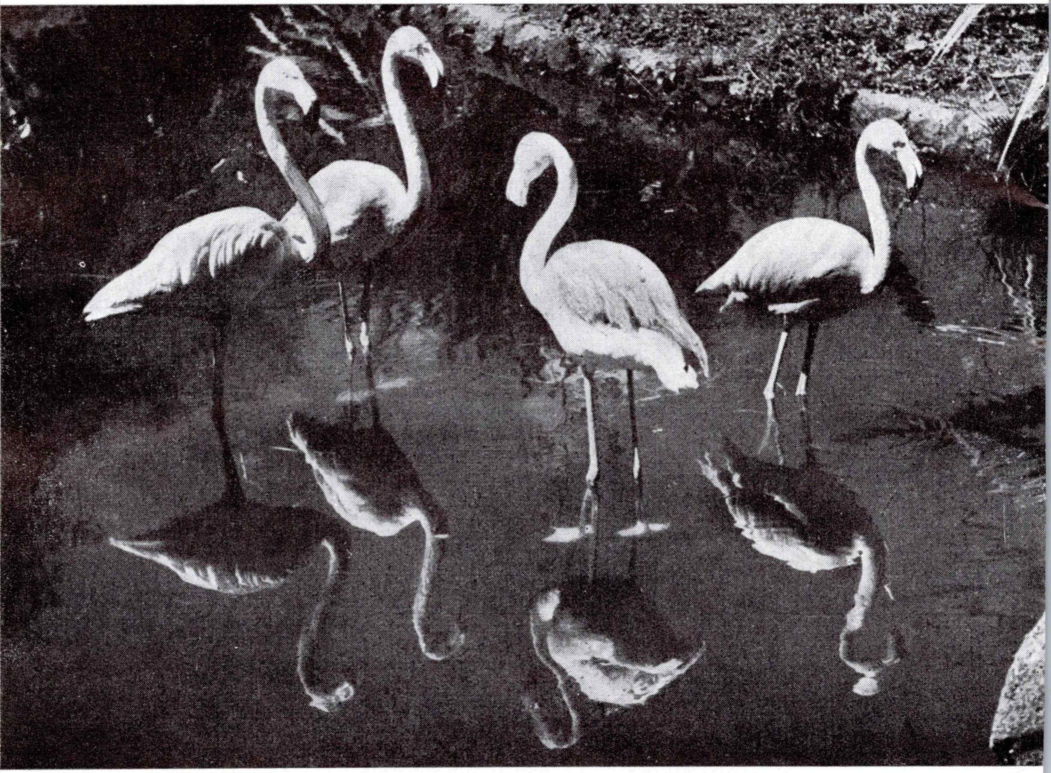
BIRDS OF PREY.

The Vultures. Vultures extend the work of sanitation to open country throughout the warmer regions of the Old World, except Ceylon, the Malay Islands, Madagascar and Australasia. They are credited with the keenest sight of any bird, for, while the eagles are helped to detect their prey by movement, the vultures, hovering at a height of a thousand feet or more over a clearly-defined "beat," will instantly detect any sick or injured animal and drop to the feast. The movement is observed by other vultures from incredible distances, and within a very short time dozens will have assembled around the board. As Longfellow wrote:



White Peacock Displaying.

Rosy Flamingoes.



"Never stoops the soaring Vulture on his quarry in the desert,
On the sick or wounded Bison, but another Vulture watching
From his high aerial look-out sees the downward plunge and
follows."

Three types of **griffon vulture** (Gyps fulvus), Europe's largest bird, are exhibited. The **griffon** (Gyps fulvus) figures largely in Egyptian hieroglyphics, together with the **Egyptian vulture** (Neophron percnopterus), the smallest of the group. Both have been found embalmed, probably in recognition of their invaluable sanitary service. for the latter, also known as "Pharaoh's Chicken," is said to be the "foulest feeder that flies."

The Turkey Vulture (Cathartes aura). This represents the New World branch of the family, and is the small cousin of the **condor** (Sarcorhamphus gryphus), the famous vulture of the Andes, which is the largest bird that flies. Looked at sidewards, these birds show an opening, or "window," in the partition between the nostrils which occurs in all the American vultures.

THE CRANES.

The Demoiselle Crane (Grus virgo). This bird is so called from its dainty and ladylike appearance. It can be distinguished by the plume of white feathers which extend backwards from the eye. The general colour of the plumage is purplish-grey, but long, black feathers clothe the neck and breast. This crane has a wide range from North Africa and Southern Europe to India and Central Asia.

The Sarus Crane (Grus antigone). The sarus crane of India has the head and neck bare except for numerous crimson warts bearing a few scanty black hairs. The plumage ranges in colour from whitish to blue-grey. It is said that these birds will never survive the death of their mate.

The Great Wattled Crane (Grus carunculata). This bird from South America takes its name from the two feathered flaps of skin which hang from the chin.

THE ORNAMENTAL DUCKS.

The **Carolina** or **wood duck** (Aix sponsa) from America is one of the most fascinating birds in the Zoo and when in breeding plumage appears almost artificial in his colouring. Running a very close second for attractiveness is the **mandarin duck** (Aix galericulata) from the Far East.

The ducks are classed together with the swans and geese. The **Australian black swan** (Chenopis atrata) and the **European mute swan** (Cygnus olor) will be seen on the lake.

A goose not so far mentioned is the **Canada goose** (Bernicla canadensis), which is now being established in many parts of the world, including New Zealand. The specimen on exhibition are from the South Island.

A number of other ducks will be found on the covered pond—one of the greatest favourites being the **red-billed whistling tree duck** (Dendrocygna autumnalis autumnalis) which hails from Central America.

In view of the disease situation it seems highly improbable that we shall ever be able to increase the variety of ducks on exhibition at the Zoo.

THE RAVEN

(Corvus corax.) The raven on exhibition at the Zoo were flown out trom England two years ago. They arrived in late January and apparently thought it was spring and started to nest. It was some time before they discovered their mistake.

These are the same variety of birds which are so well known to visitors to the Tower of London.

CLASSIFICATION OF BIRDS

The birds on exhibition are classified in the following groups:—

1. **Parseriformes:** The perching birds. This includes many of the ordinary birds such as crows, finches, thrushes, etc. Representatives in our collection consist of the Australian finches, the piping crow, the raven. Into this group come the bower birds.

2. **Coraciiformes:** This group includes the owls, kingfishers, etc The Great Eagle or Horned Owl is distinguished by large tufts of feathers on the crown of the head, the so-called "ears," which have, however, no connection with the organ of hearing. Some twenty species range over the greater part of the Old and New Worlds, though they are not found in Australasia.

   Into this group would fall the kookaburra, the morepork, as well as the tawny frogmouth.

3. **Charadriiformes:** This group includes all the pigeons and doves as well as plovers, grouse, etc. In addition to those mentioned in the catalogue, visitors should notice the LACE-NECKED DOVE from India which has now become acclimatised in New Zealand and is not uncommon around the Auckland area. The NICOBAR PIGEON is a striking bird of very attractive plumage remarkable for the hackles around its neck. This bird occurs over a considerable part of the Malay Archipelago. A number of varieties of fancy pigeon are on exhibition, and in addition to the English Pouter and the ruffed Indian Jacobean will be found the nuns and the monks. The monk has the markings directly opposite to that of the nun. The ring necked dove is one of the most attractive little birds in the Zoo.

4. **Gruiformes:** This includes crane and rails.

5. **Galliformes:** This is the group in which the domestic fowl falls, and in addition contains some of the most attractive birds for zoological work, as it covers the range of peacocks, pheasants, etc. In this group the tendency for the male to assume bright plumage in order to attract the female, is developed to a very high degree.

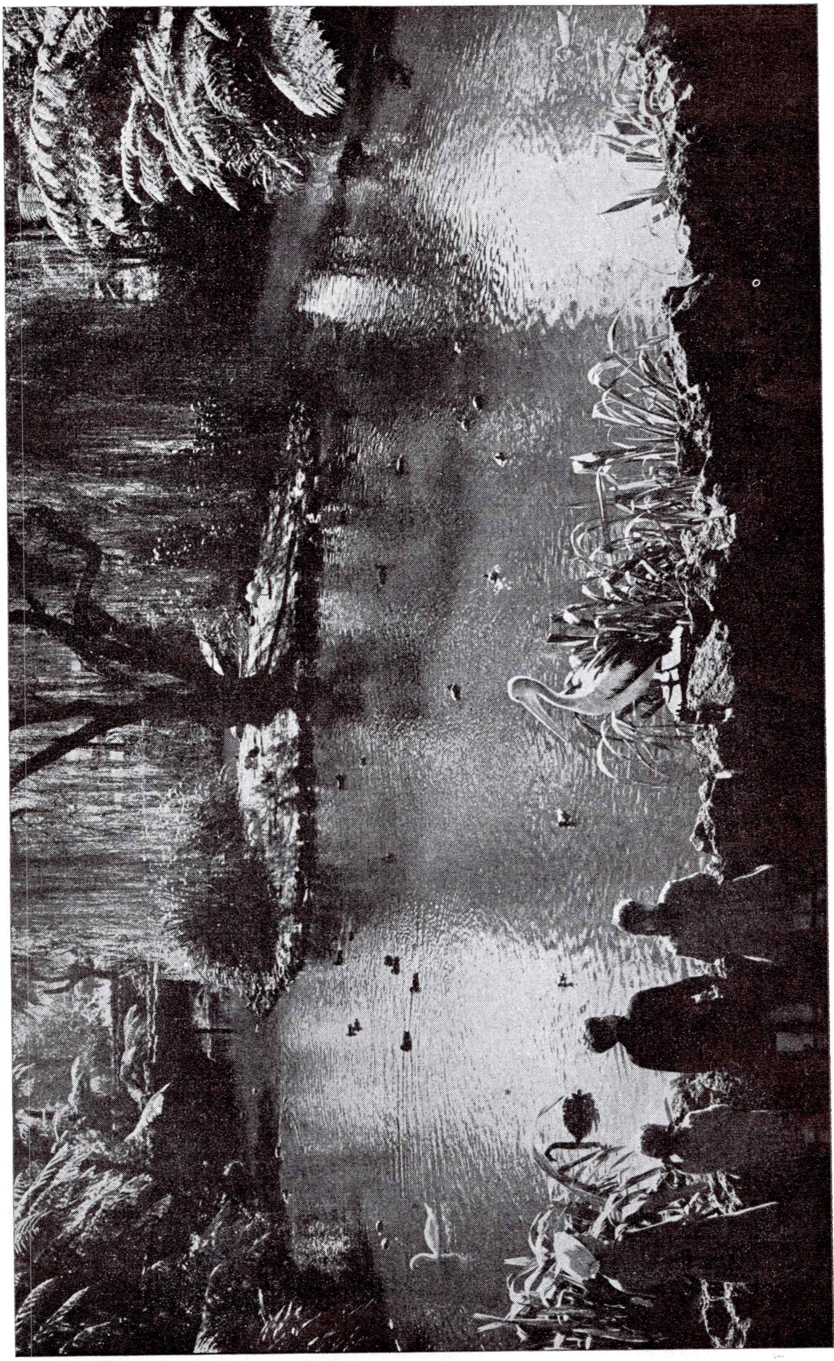
6. **Accipitres:** This group covers birds of prey. Owing to the special accommodation required for this type of bird, only a few specimens are on exhibition at the Zoo.

7. **Anseriformes:** These are the ducks, geese and swans.

   While the herons are waders, with long legs and neck, the swans, geese and ducks are swimmers, with short legs and webbed feet, enabling them to seek their food on the open water.

8. **Ciconiiformes:** This is the group that covers the herons, storks and flamingoes.

   Relatives of our native herons and bittern are seen in the form of cattle egrets, ibises and flamingoes. Typically long-toed, long-necked and long-legged waders with a dagger-like beak, members of the heron family find a living among the reeds and on the mud-flats of rivers and estuaries. As eels, frogs and worms form much of their food, a serrated beak gives a better grip on such slimy prey. Provision is also made for the removal of the slime from the feathers at the end of the day's fishing. This takes the form of "powder-downs" on the breast and thigh. These patches of modified feathers yield a very fine powder resembling Fuller's earth which is used as



Lake in the centre of Auckland Zoological Park.

a shampoo on the soiled feathers and then removed with a comb-like edge in the inner side of the middle claw. Herons fly with the neck bent back so that the head rests between the shoulders, whereas storks, swans, geese and ducks fly with outstretched necks. Herons typically perch and nest in trees, and the hind toe is consequently well developed.

9. **Cuculiformes:** These are the cuckoos, parrots, cockatoos and macaws.

Three groups of birds occurring in New Zealand are not represented in the Zoo. These are:—

Procellariiformes: These are the petrel and albatross, and are essentially sea-going birds, unsuited to captivity.

Colymbiformes: These are the grebes and divers.

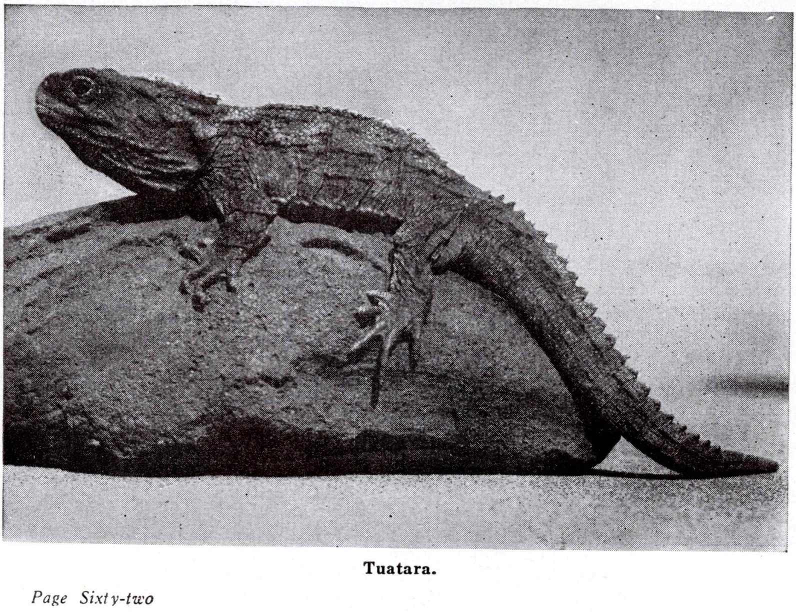
Sphenisciformes: This covers the penguin family. A number of these birds occur around the coast of New Zealand and in the dependent islands to the south of the mainland.

THE REPTILES

Snakes being prohibited, the reptiles are represented by lizards, land and water tortoise, and the tuatara.

THE TUATARA.

(Sphenodon punctatus.) This creature is found only in New Zealand, and is, from the zoological point of view, quite unique. Although when viewed casually it does not appear particularly extraordinary, it has so many unusual anatomical features that it occupies a special order of its own in the classification of animals. It is often referred to as "the living fossil" because until its discovery in New Zealand it was only known by



Tuatara.

fossil remains some million years old found in Europe. Today the creature is found on the islands lying off the North Island, stretching from Stephen Island in the Cook Strait as far north as the Poor Knights group. it is, of course, strictly protected.

Unlike the lizards it has ribs over the abdomen and the teeth are actually projections from jaw bones sticking through the gums. A great deal is heard about the third eye of the tuatara. This cannot be seen from the surface, but if the skin between the eyes were to be cut open and torn back the so-called eye can be seen. It is actually the survival of a primitive pair of eyes and is reputed to be capable of distinguishing light from dark. In other animals it is represented by the pinial stalk.

THE LIZARDS.

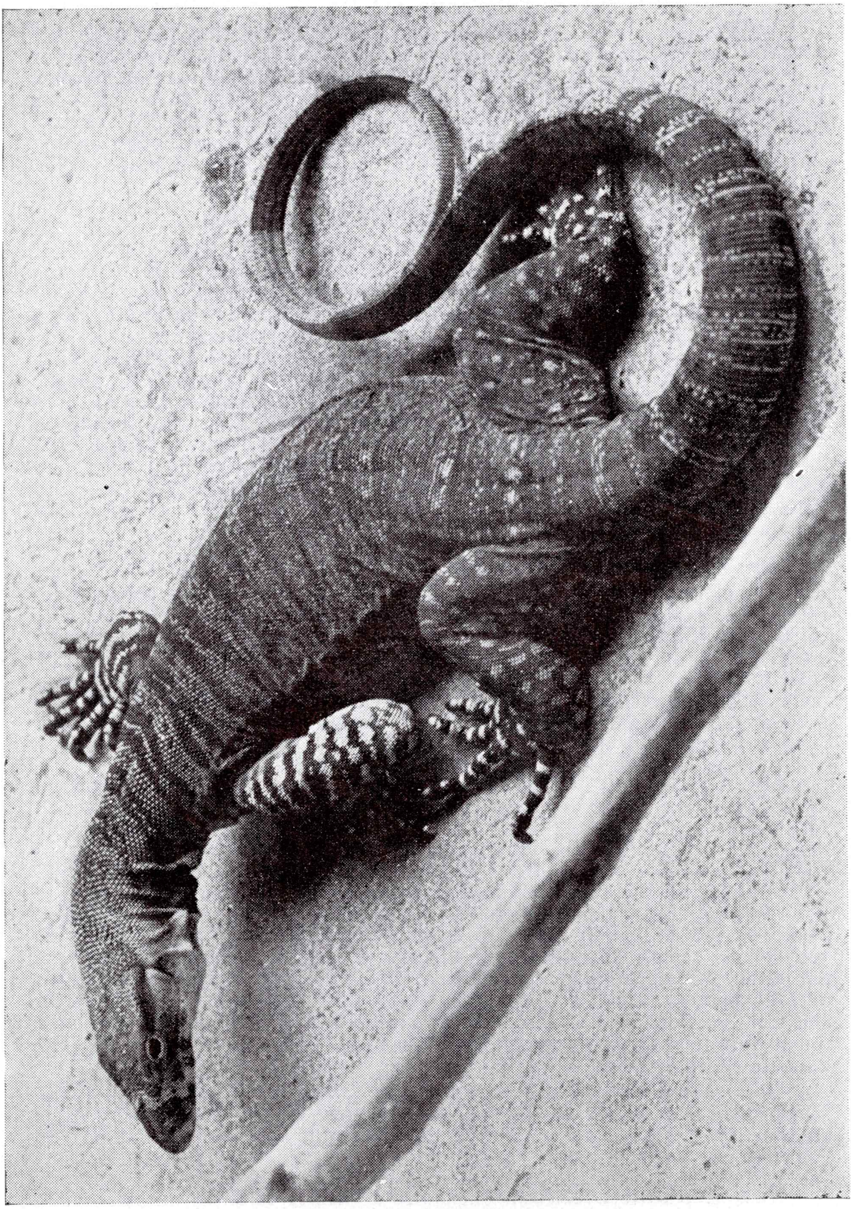
Lizards in some seventeen hundred species occur all over the world except in the arctic and sub-arctic regions. They are found from sea level to the very edge of eternal snow; in swamps and deserts; in trees or on the ground or among rocks; on cliffs and walls—in short, there is hardly a situation in which some member of the order may not be found. A great majority live on animal food; the larger species feeding on small mammals, birds, eggs, frogs and fish, the smaller on insects, worms and snails. In the tropics lizards spend the hotter months in a state of suspended animation; in colder climates they hibernate in winter. At other times they are extremely active and agile, and are able to spring to a considerable distance after their prey. The suck-like feet of the geckos enable them to climb vertical walls, while the flying lizards are provided with a parachute formed of membrane spread on expanded ribs.

The Stump-tailed Skink from Australia is clothed with thick, brown, horny scales which give it much the appearance of a living pine-cone. The wedge-shaped head is very wide and flattened, while a very thick and stumpy tail gives it a popular name. It is very slow and lethargic in its movements, and is consequently also known as the "sleepy lizard." It burrows in dry sand, however, almost as quickly as a mole. Its chief food consists of worms and insects, though vegetable matter is sometimes eaten. The eggs are retained in the body until ready to hatch.

The Goanna or **Monitor** represents a group of very large lizards including the famous Komodo dragon from the Sunda Islands, which reaches a length of ten feet and feeds on small wild pigs. The popular name of "goanna" given to the Australian species is a corruption of "iguana," and is a misnomer, as the monitors belong to a different family. These rapacious reptiles are distinguished by a long and forked tongue like that of the snakes, which can be protruded from the mouth. The neck and tail are longer than in other lizards. The skin is covered with very small scales. The teeth are large and pointed. Gould's monitor, as exhibited, ranges through Australia and New Guinea. It reaches a length of four feet, is brown above with yellow spots, and has yellow rings on the tail. Its food consists of small mammals and birds. Eggs are also much appreciated and are swallowed whole, being then crushed by the muscles of the gullet.

The **waterdragon** could easily be mistaken for a tuatara, but the stiffness of its spines along the back points to the difference. Other smaller Australian lizards on view are the **blue tongued skink** and the **cunningham skink.**

New Zealand Lizards. There are a variety of these on exhibition. The classification of these beasts is now being worked out, and it would appear that the previous classification is not satisfactory. Most fascinating of the New Zealand lizards is the green gecko which is frequently kept by children as a pet, and appears to become quite domesticated.



Australian Goanna.

THE TORTOISES AND TURTLES.

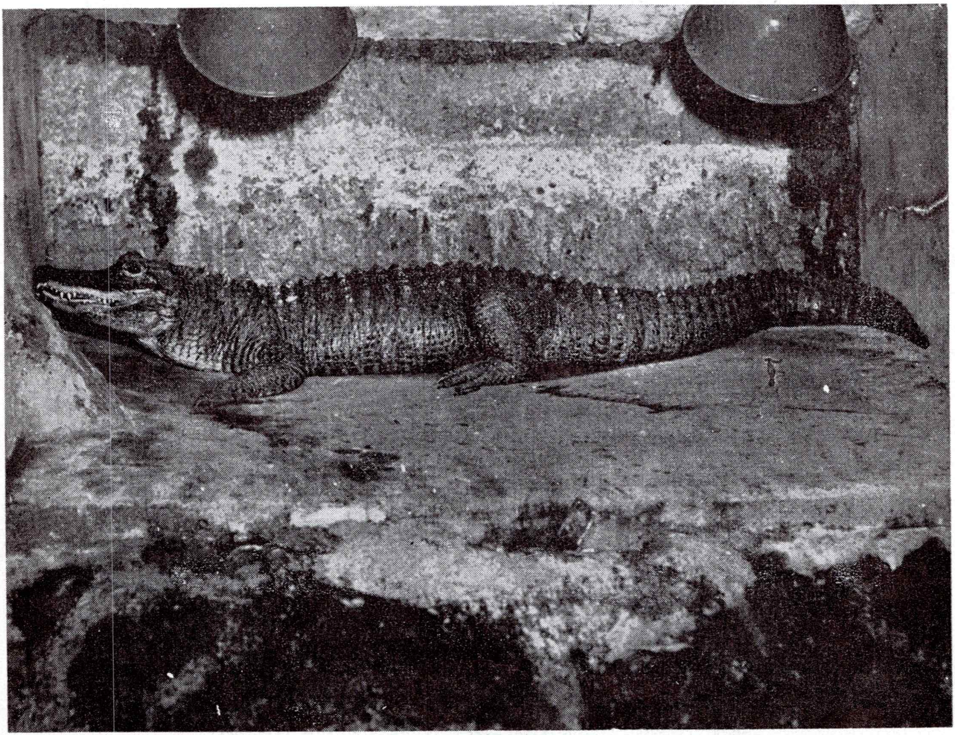
These are collectively called Shelonians. Generally speaking the word "tortoise" is used for land forms of the reptile whilst the word "turtle" is confined to water-inhabiting specimens. The word "terrapin" is also sometimes used to refer to the edible varieties. However, the terms are not strictly applied and quite a considerable amount of confusion has developed over the years.

The box-like shell into which most of this group are able to retract their head and limbs consists of two portions—the upper is called a carapace and is joined firmly to the backbone. The underneath portion is the plastron. During growth successive layers are added to the inside of the shell, the outside of which flakes off.

The so-called tortoise shell is produced from the carapace of the **hawk's-bill turtle** (Chelonia-Caretta-squamata). Another famous member of this class is the **green turtle** (Chelonia Midas) used for making turtle soup.

The Painted Terrapin from the eastern states of North America is another typical water tortoise with a smooth and much-flattened shell. Its name is derived from the pretty yellow, black and red markings on the carapace, head, neck and tail. The terrapin is regarded as a great delicacy in America, and thousands are raised in water "paddocks" communicating with tidal streams or estuaries. They are fed largely on shrimps and prawns, and hurry across the ponds at feeding time to receive their rations. Worms, insects, frogs and fish constitute their natural diet.

The Long-necked Terrapin or **Snake Tortoise** can be immediately distinguished by the abnormal length of its neck. It differs little in habit from the **painted terrapin**, with which it shares a pond.



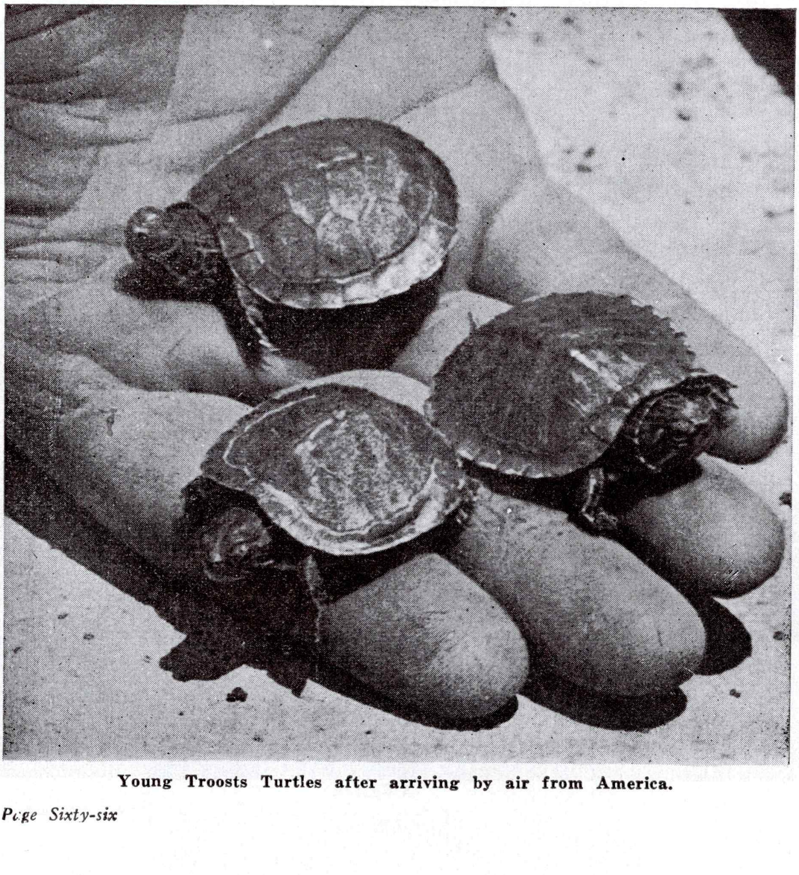
Alligator.

AQUARIUM AND VIVARIUM.

Although the aquarium in the grounds is small, it represents one of the largest public collections of fresh water fish in Australasia. It is difficult to describe fish in detail, as some of them have a normal life span of only two years, but visitors can hardly fail to be fascinated by the great variety of colour and shape that can be found in even so modest a collection. The advantage of fresh water fish over salt water for exhibition purposes, is that the tanks can be made to look most attractive by the use of the many types of submerged water weed that can be induced to grow. A number of the tanks are heated by electricity, although the newer wing is temperature controlled by gas. The fish are under the care of Mr. F. Blair.

Firm of favourites are the **angel fish** and the **head and tail-light fish.** In addition will be seen the grotesque **Mexican axolotl.** These have bred successfully whilst in the aquarium. The creature is well known to science as an example of arrested development. When fed thyroid the axolotl will undergo metamorphosis into a salamander.

It is hoped to display a variety of exotic lizards as well as some interesting New Zealand insects in the vivarium, although at the time the guide goes to print arrangements have not been completed.



Young Troosts Turtles after arriving by air from America.

ALLIGATOR.

The specimen on exhibition was donated by the Honolulu Zoological Park. It is as yet only a comparatively small specimen.

The question is often asked, "What is the difference between an alligator and a crocodile?" Both animals have this in common, that they are members of the reptile family and are of very ancient lineage. Alligators are far less widely distributed over the world and are found in only the Americas, particularly in the Mississippi area and in Florida.

In appearance they are quite similar, except that the alligator has a much more rounded snout than has the crocodile, whilst the fourth tooth of the lower jaw fits into a small cavity in the upper jaw of the alligator. This is not the case with the crocodile, so when its mouth is shut this large tooth can easily be seen.

During the winter our alligator is kept warm by heat from infra-red lamps.

CROCODILIANS

The Crocodilians on exhibition are young specimens from the Malay Peninsula. It is interesting to study those in the Aquarium where they can sometimes be seen floating on the water. It will be noticed that when in this relaxed position their bodies are totally submerged except the eyes and nostrils. This is so the animal can breathe and see what is going on, but makes it difficult for its enemies to observe it. Temperamentally the crocodile is much more vicious than the alligator and considerable care has to be taken in handling the larger specimens. It is interesting also to note that whereas the alligator can survive outdoors during the winter in Auckland the crocodile cannot do so. During the winter, however, the alligator goes off its feed and takes no nourishment for nearly six months. This is quite typical of the torpid state into which a number of the reptiles go during the cold weather.

THE GROUNDS.

The Zoological Park consists of an area slightly over 28 acres, and was first opened on the 17th December, 1922, by His Excellency the Governor-General, Viscount Jellicoe of Scapa, G.C.B., O.M., G.C.V.O. All the trees had to be planted after the grounds were laid out, and it is interesting to note that the area of native bush has developed very rapidly in the ensuing years. New Zealand is fortunate in having a climate particularly favourable for horticulture and silviculture, and in Auckland it is possible to grow specimens of trees from almost all parts of the world. The bulk of trees and shrubs in the grounds are of Australian or New Zealand origin, but many from the Middle and Far East are also to be found. One of the best views of the Zoo can be obtained from the lookout point called Charlie's Point, named after Mr. C. Gavin, groundsman, who first realised its potentialities when repairing a fence line. Visitors coming in the Old Mill Road entrance should turn to the left to get to this vantage point, but the route is not suitable for prams.

Of special interest is the cactus garden planted out by the Cactus and Succulent Society. Although only established in 1948, these plants have made very good progress and are an exhibit well worth viewing.

A number of birds will be seen flying around the grounds, and in addition to the sparrows, starlings, thrushes and blackbirds, all of which have been introduced to this country, the following will be seen:—

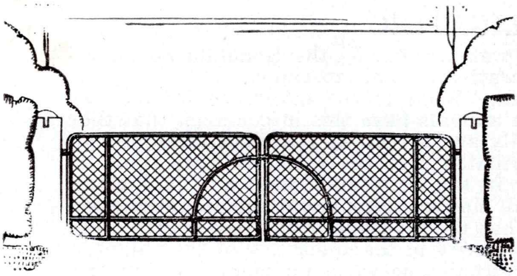
Native Birds.

Paradise duck, grey duck, pied fantail, grey warbler, tui, rifleman, as well as various varieties of seagull. Various types of shag also will be seen flying over the grounds to their sanctuary on Western Springs.

Introduced Birds.

Indian mynah and the lace-necked dove, black swan, goldfinch, linnet, yellow hammer. The Australian wax eye is not originally native to New Zealand, but appears to have come from Australia "under its own power."

Makers of the Zoological Park's chain-mesh netting



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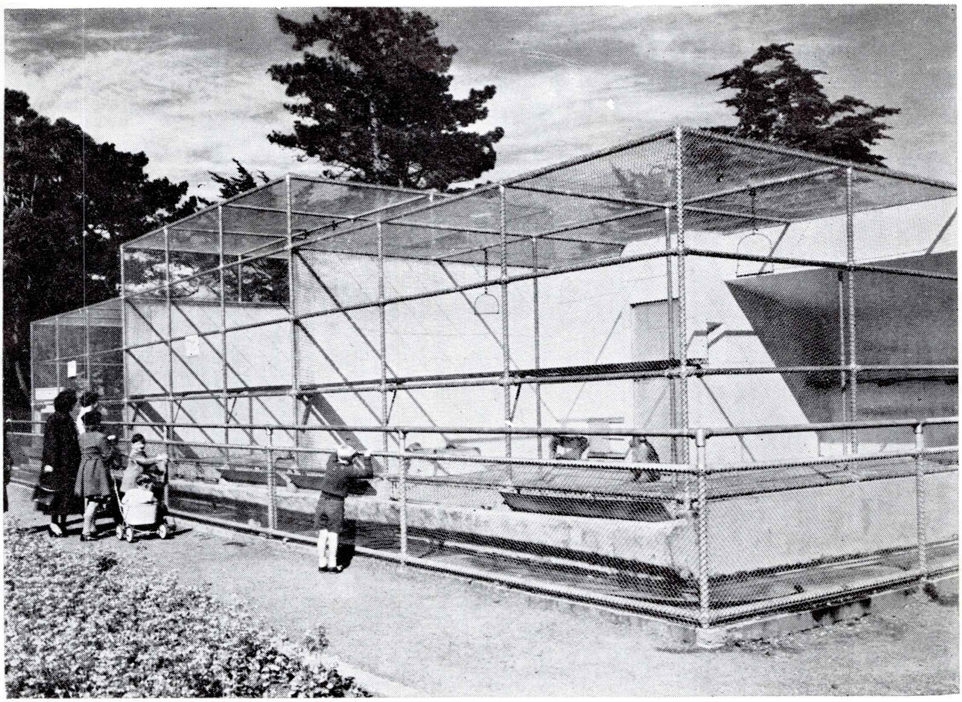

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